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Lecture 6th.

We are in the next Place to speak of Drinks. The genual Use of Drink is to supply Fluids to the System to promote the Solution & to expede the Evacuation of the Aliment out of the Stomach. Drinks taken in moderate Quantities facilitates Degestion dilutes the Chyle promotes Absorption & thus assits Nutrition. When taken in large Quantities it urges the Food out of the Stomach before it is sufficiently digested accelerates its Motion thro' the Intestines, by which Means Absorption is prevented & hence hinders Nutrition.

Persons who fatten Fowls for the Market allow them no Drink by which Means they are fattened in a much shorter Space than they otherwise would be all their Food being conserted into Chyle. Drink keeps fluid the Lymph by diluting it & hence prevents Obstructions & Stagnation in the Glands those Disorders which arise from these Causes. The same thing happens in the sanguiferous System; hence the whole is kept in a proper Degree of Fluidity. Secretion is carried on in a regular Manner. the Insensible Perspiration is kept up and thus the degenerated Parts of our Fluids are evacuated before they can be accumulated so as to produce Disease. Capt. Cook thinks that the Reason why the Scurvy did not appear among his Men was as much from allowing them as much Water as they chose to drink

as from any other cause for during the whole Voyage the Men were not reduced to an Allowance of Water: These Effects are all produced from simple Water & we may in general observe that all Substances are proper for Drink in proportion to the Water they contain — Various Substances have been added to render it more palatable or for particular Purposes, as to render it more nourishing or more healthy — Thus Malt is added to Ale & Beer to answer the first — Acids are added to Water to make it quench Thirst more effectually. But let us enquire into the Causes of Thirst — This may in general be referred to the four following Heads —

1 Thirst is occasioned by a Defect of Fluids in the System by which the Secretion of the Glands in the Mouth & Fauces is diminished likewise by the Air moving the Mouth in its Passage to & from the Lungs. —

2 It is occasioned by solid viscid Food if it be taken in large Quantities —

3 By Alkalescent Aliment especially if it has acquired any Thing of a putrefactive Taint &

4 Thirst is occasioned by an Increase of Action of the Heart & Arteries more particularly when the Heat is so increased as to constitute Fever. In this last Case the Thirst is out of all Proportion to the Heat of the Body & appears to be owing to a Constriction of the Fauces & is often intolerable. That the Thirst in this Case arises from Constriction is evident from appearing in the Cold Fit of an Intermittent

where there is no Heat. It is only to be relieved by removing the Constriction. I am hereafter to consider the Use of Drinks in Fevers.

Physicians have had very different Opinions on this Head some enjoin their Patients a rigid Abstinence from Drink while others indulge them to the utmost of their Wishes - For my own Part I can not believe that any Inconvenience can arise from allowing our Patients Drink plentifully provided he does not drink too large Quantities at one. Large Draughts overload the Stomach increase Oppression, augment the Fever & thus prove hurtful - Moderate Draughts frequently repeated are of considerable Advantage - They increase the Secretions by Stool Urine & Sweat supply Fluid to the System and tend to keep up a gentle Perspiration, which has a great Tendency to moderate the Fever - The Heat is never so intense when there is a gentle Perspiration. When Thirst arises from a Constriction of the Fauces which we know to be the Case from their Clamminess & from the intolerable Thirst which the Patient complains of whilst he is drinking - it is only to be relieved by taking off the Constriction - This is to be done by holding a Tamarind or any other Acid in the Mouth which by stimulating the Ducts will occasion a more copious Secretion & Secretion of the Fluids into the Mouth. In this Case the Cause seems chiefly local & is to be removed by local Applications.

We are in the next Place to consider what

what Drinks are best in particular Fevers. In all Inflamatory Fevers in general acidulated Drinks are the most proper - whether this is the Case also in Cases of Topical Inflamations as in Pleurisies & Peripneumonies is a Matter of Doubt - These Disorders are generally attended with a Cough & it is well known that Acids will increase a Cough - for this Reason I have been deterred from using them in these Diseases altho they are in other respects very proper - I have made the Experiment & have always been obliged to desist on Account of it - If in any Case they can be exhibited without this Effect they will certainly prove useful - I generally in these Cases recommend a Glyster of Barley-Water in which some Raisons, Prunes or Liquorish Root have been boiled - This affords an agreable cooling Drink & also tends to keep the Body open which is one of the principal curative Indications

Acidulated Drinks are highly useful in Putrid Fevers, Dysenteries, Bilious Vomitings, & wherever there is a Disposition to Putrefaction. In these Cases Almost any in which some Cream or Tartar has been dissolved will do if they afford a very agreable & wholsome Drink I have often found to be of great Service & have oftentimes had occasion to use no other Remedy in the Measles - It will prevent Peripneumonic Symptoms the Diarrhoea & Dysentery which are so often the Consequence of this Disorder - It has also this Advantage it has the Appearance of Art with the Patient & Bystanders

And the Physician should always endeavor to rise above an Old Woman in his Prescriptions.

Acidulated Drinks are not so proper in Nervous Fevers - In this there is generally a great Oppression at the Stomach arising from Debility - Acids tend to increase this Oppression & threaten to produce Flatulencies - On this Account of Debility we cannot administer the Neutral Mixture so freely as in other Disorders & Saline Substances given with a View of opening the Bowels often occasion Flatulencies & Oppression - In these Disorders some thing moderately stimulating & comfortable to the Nerves is required - Infusions of Sage or Balm, Wine Whey & in the avanced Stage Mustard Whey is a Head & with happy Effects -

Acidulated Drinks are very improper for those who are recovering from Intermittent Fevers. During the cold Fit our Patients should drink to Nothing at all or at least as little as possible - During the hot Fit and Intermissions Infusions of Camomile or Centaury are undoubtedly the most proper - But our Patient often times requires some thing more grateful & during the hot Fit we may indulge him with acidulated Drinks but at no other Time. Every Thing which debilitates the Stomach will in Convalescents from Intermittents bring on a Return of the Paroxysm. It has been a Question much agitated among Physicians

whether warm or cold Drinks is most proper in Fevers—
Some are for rejecting cold Drinks altogether while
others highly extol them. In all Topical Inflamations
and in Inflamatory Fevers in general cold Drinks are
improper & should be altogether abstained from but
in all Nervous, Putrid & Remitten[t] Fevers they are
much more proper than warm Drinks & may be
used with considerable Advantage— This is evident
from the Practice of the Spanish & Italian Physicians
who give their Patients in Remittent Fevers cold
Water in Summer cool it with Ice & find considerable
Advantage from this Practice. In general we may
observe that in all Inflamatory Fevers where
the Action of the Heart & Arteries is too great cold
Drinks are improper— In all Fevers where their
Action is too weak & the Vis vita sunk they are highly
useful— In low Nervous Fevers Nothing is so grateful
to the Patient as a Draught of cold Water but with this
Gratification they are frequently deprived thro' the
Prejudice & Ignorance of the Physician— Cold Drinks
in these Cases is much preferable to warm which
unladen the Stomach & System already too much
debilitated—

Drinks should be frequently administered in
a Nervous Fever oftener than they ask for it, for
they have generally a Delirium & a perfect In-
sensibility to their own Concerns— If

It has been a common custom in this Country tho not so much now as formerly to drink large Quantities of Punch in warm Weather — This is a very pernicious Custom — The Acid weakens the Tone of the Stomach, produces Flatulence, & lays the Foundation for the Gout in the Extremities, & in the early Period of Life & in the Stomach & Head in a more advanced Stage — The Spirit contributes but little but as sure Degrees to the same End — A Remarkable Instance of the Effects of Intemperance we have in the West Indias — Those who are in general very intemperate seldom arrive at any thing like old Age but are generally carried off at an early Period of Life — The Women who lead a very temperate Life are in general very healthy & often live to a very old Age —

We are next to speak of the Use of Drink in the Dropsy — This is in general accompanied with a very great Thirst from a constriction of the Fauces which is not to be relieved by Drink for there is too great a Quantity of Water in the System Drink seems to be highly improper — I knew a Surgeon of Eminence in London who was cured of a Dropsy by a rigid Abstinence from all kind of Drink — His Abdomen was so distended with Water that it was actually burst the Cicatrix of which he bears to this Day — He kept a Stump of Tamarind constantly in his Mouth & sometimes moistened them with Wine in order to allay the intolerable Thirst but not Fluid

whatever passed his Tongue - Historians & some People have been relieved of a Dropsy by drinking large Quantities of Water & bringing on a Vomiting Purging & copious Discharge by Urine - This is not owing directly to the Water but it proves the Cause of the Cure mediately by its Stimulus - It is however a very precarious Remedy & if not attended with those Effects must certainly prove destructive. —.

We are in the next Place to consider Condiments - Condiments are all such Substances as are taken in with our Food to correct any bad Tendency it may have or to render it more palatable & agreeable to the Stomach - The first to be considered are the Aromatics - These are certain acrid Substances which are taken in with our Food to render it more palatable. In the warmer Climates are Cinnamon, Cloves, Nutmegs, Mace, Pimento &c - Analogous to these in the Northern Climates are the Seeds of Anise, Caraway, Fennel, Coriander &c. and all the sweet Herbs - They stimulate the Stomach, promote the Peristaltic Motion are Antispasmodic, taking off the Spasms in the Alimentary Canal & Antiseptic - From these Qualities they appear to be very proper to accompany Vegetable Food and hence the Use of them should be confined to the Warm Climates of which they are the Produce the Inhabitants of which live mostly on Vegetables as Rice, Milk, Dale &c. In the Northern Climates where they live chiefly on Animal Food they are very improper - Their increase

the Stimulus of the Food & render the Fever which always accompanies Digestion greater. Animal Food is of itself sufficiently stimulating & savory without their Assistance. They ought principally to be avoided in the Prime of Life as like all other Stimulants they destroy the Tone of the Stomach & lay the Foundation for early Diseases. Persons who use these Substances freely early in Life when old Age comes on are troubled with Flatulencies, Indigestion, Costiveness Long Obstructions in the Liver & other Viscera & the whole Train of Disorders consequent upon these are produced. If they are ever proper it is only in old Age when the torpid State of the Stomach requires Something stimulating to excite it to Action. The Condiments most proper to accompany Animal Food are the different Kinds of Cresses, Radish, Horse-Radish, Mustard & all other Plants of this Kind. They stimulate the Stomach are Diuretic Diaphoretic & thus carry off the degenerated Parts of the Fluids. The same may be said of Leek, Onion, Garlick which also very properly accompany Animal Food.

The Condiments more generally employed are Salt, Vinegar & Sugar.

Salt is that most universally employed it is the most lasted least apt to putrify. It has been said to be Antiseptic. This seems to be contradicted by our using it with Vegetables and Carnivorous Animals

are poisoned by it whereas the Gramnivorous are very fond of it & surely it can not act here by any Antiseptic Quality. Salt is particularly proper to accompany a Vegetable Diet = It stimulates the Stomach a sists Digestion excites the Appetite & promotes the Secretion of Saliva & the Gastric Liquor. Animal Food preserved with Salt is indeed hard of Dim & of difficult Digestion & may predispose to Scurvy & other Putrid Disorders. Salt that is also very proper for Persons troubled with Worms particularly the Tape Worm. When Salt is applied to Worms out of the Body it is found to destroy them. Sheep are subject to a Disorder called the Rot. It is owing to a Worm in the Liver. Salt is found to cure & if Salt be given to the Sheep from time to time they will never be afflicted with this Disorder. For this Reason the Farmers in those Countries where Salt is plenty put large Pieces of Rock Salt into the Sheep Folds that the Sheep may lick it whenever they have a mind. Whether this first gave the Idea to the Physicians of prescribing Salt for the cure of Worms is immaterial. Certain it is that much Benefit has been received from its Exhibition. Dr Rosenstein first Physician to the King of Sweden always directed his Patients to live two or three Weeks upon Salted Meat before they took any Medicine for Worms. He also directed them to eat a Piece of Salted Meat or Fish, Herring for Instance, for Supper & to drink nothing

for some time after it, by this means the Worms were not only deprived of their proper Nourishment but were also exceedingly distressed by the Salt & also yielded more readily to the Medicines administered. A very good domestic Medicine for Worms is a little Salt mixed with Molasses & taken every morning for two or three Weeks this will seldom fail to effect a Cure. Salt has been much recommended of late as a Specific in Spitting of Blood as also in Vomiting of Blood. I have given it a fair Trial in four Cases. The Dose is 2 or 3 Spoonsful a Day, either Dry as it is the last Method or dissolved in Water. In one Case in which I tried it, it had no Effect In three other Cases the Complaint was relieved but other Medicines were combined with the Salt which might has as great a Share in producing Relief as the Salt. In the two following Cases it had very good Effects. I was called upon to visit a Gentleman then about 32. whom I found Spitting up clear Blood from his Lungs. He had never been troubled with this Complaint before & was free from Pain or any uneasy Sensation in the Breast & his Pulse was neither hard nor full. He knew not what to attribute this Disorder to until that some Days before he crossed a Creek which proved to be deeper than he expected so that his Horse was obliged to swim & he got wet up to the Middle. I ordered him to take about ℥ xij of Blood & ℥ij Sal Glaub. quoque alia Hor.

The Medicine opened his Bowels gently & he was relieved considerably of the Spitting of Blood. I advised him to continue the Medicine & to use Barly Water for common Drink & to live very low. But the next Day in the Afternoon the Spitting of Blood returned as bad as before as he had taken the Medicine regularly & strictly complied with the Regimen I had prescribed. I then ordered him to lose ℥ij of more of Blood & to take ʒ ij Pulv. Sal. Marin: quoque fecund: Dora by this Course he in a very little Time recovered of his Complaint & has never had a Return of it to this Day. Some Time after I was called to visit a Lady about 50 of a delicate Habit of Body who had been troubled all the Winter & Spring with what is commonly called a Cold, a troublesome Cough, Uneasiness in the Breast, a low Fever. The Day I saw her she had been seized with a Spitting of pure Blood from her Lungs. As she was rather weak & never bore Bleeding well I ordered her to lose only ℥ viij of Blood & to take ʒ ß Sal Glaub: quoque fecund: Dora. As this produced no Relief & the Case was now attended with Faintings I truly alarming I ordered a Blister to be applied to the upper Part of each Arm & Half or a Teaspoonful of common Salt to be taken every two Hours. As this disagreed very much with her Stomach I ordered a strong Solution of the Salt & Water to be made of which she was to take as much at a Time & repeat it as often

as her Stomach would bear - This she continued to nauseate her Stomach as indeed every thing did which she took - She was after some time relieved of her Complaint & has had no Return of it. She used the Solution for several Weeks after she was relieved & continued under a very strict Regimen for several Months. I have since had Recourse to Salt in several other Cases & always with evident & favorable Effects -

Vinegar gives a grateful Taste to our Aliment, stimulates the Stomach excites the Appetite - It is a very proper Condiment for Animal Food as it resists the Tendency which that has to Putrefaction - It is also very useful with Vegetables as it determines to the Acetous Fermentation & thereby prevents the bad Effects of the Vinous; For as in this last cases have already said the noxious Gas is generated. Vinegar however to produce these Effects should be pure & unmixed - When it contains a Portion of unfermented Saccharine Matter it is liable to undergo the Vinous Fermentation & to produce all the bad Effects of recent Vegetables -

Sugar is one of the chief Ingredients & indeed the Principle of Nourishment in Vegetable Aliment. I am not now however to consider the nutritious Qualities but to speak of it as a Condiment. It cannot be used for

for any length of Time & in large Quantities as it will
salt the Appetite - It is liable to undergo the Vinous &
Acetous Fermentation & hence is capable of producing
all the bad Effects of recent accescent Vegetables - It is
powerfully Antiseptic & hence is a very proper Con-
diment for Animal Food with which it ought to be
used in preference to common Salt. Meat preserved
by Sugar is not rendered so hard as that preserved by
common Salt & hence is more saluble & of easier
Digestion - This may be observed very readily in
Bacon. Some People have their Bacon much more
soft & juicy than others which is intirely owing to the
Mode of curing it - Those who use Sugar along
with their Pickle will have their Bacon much
nicer than those who use Salt alone. It is likewise
observed that the Hogs in the West Indias which live
on Cane have their Meat much more tender than
those which live on other Food. It is customary
among the People in the Northern Parts of Europe
to use sweet Sauces with their Meat especially in
the Winter. It is also the Pratice in some Part of
New England to use Molasses with their Bacon & other
Meat, chiefly in Winter for in the Summer it is
not either useful or necessary - This is a very
judicious Pratice. As Sugar is liable to undergo the
Vinous & Acetous Fermentation it is prejudicial to
those who are troubled with Flatulencies, Indigestion
and a prevailing Acid in the Stomach, by increasing
that Acid. It is useful in all Cases of Rigidity & Uneasiness

wherever there is a Disposition to Putrefaency.—

Sugar has been accused of producing Disorders of the Teeth— This it was thought to do by sticking to them becoming acid & then corroding them— But how so Soluble & Subtance as Sugar can stick to the Teeth & corrode them, especially if used conjoin'd it must— ferment before it becomes acid, is to me perfectly unintelligible. How can an Acid corrode the Teeth when we see that whole Nations live upon Raisons which are much more adherent than Sugar without having their Teeth affected more than those who never taste Sweets. It is probable that Tea, not Coffee & the use of Spirituous Liquors contribute much more to produce Disorders of the Teeth than Sugar. There are two Causes to which I principally assign the early Loss of Teeth in this Country—

In the first Place I think we may justly accuse the Climate— There is no Place where the Vicissitudes of Heat & Cold are greater than here— Hence we are subject to Rheumatic Affections of the Head & Face which generally affect the Teeth—

The second Cause operates chiefly on the fair Sex— They are frequently troubled with Indigestions and other Disorders of the Stomach which we know affect the Breath & Teeth. Foreigners observe that the Women in general of this Country have bad Teeth—

Sugar

Sugar has also been accused of producing ~~tod~~ increasing
Worms in the Body. It has however quite a different
Tendency for when applied to a Worm out of the Body it will
instantly kill him. Whilst the Worm remains at Rest in
the Intestines the Patient is easy but when he
crawls along the sensible Membrane of those Parts
a great Pain & often Convulsions are produced. This
often happens when the Patient has eaten a Quantity
of Sugar & it is commonly ascribed to the Worm
moving towards the Stomach through Eagerness
to get at his favorite Food. But we find when
Milk the proper Nourishment of Worms is taken no
such Effects follow; And we often find that Convul-
sions are produced when any efficacious Medecines
are taken to destroy Worms. We must therefore
conclude that these Effects are owing to the
Worm moving from the Stomach by that
Principle of self Preservation which teaches him
to avoid the Food which would prove his Destruction
as it is to [redacted] him a Poison. It is highly probable
that the less frequent appearance of Worms & the
Disorders arising from this Cause is owing to the
more general Use of Sugar -

Since the Use of Sugar has become more
common many Disorders which formerly were

were very frequent seldom or never appear.
A great Change has lately taken Place with
Regard to Diseases. In the last Century when
People lived principally upon Meat & strong
Food the Diseases were in general of the Inflamatory
and Putrid Kind. Since Tea & Coffee with Sugar have been
generally used those Disorders have been greatly dimi-
nished & the whole Clan of Nervous Disorders have made
their Appearance which were very rarely known
among our Ancestors. If we consider that Nervous Disorders
are not so fatal as Inflamatory & Putrid & are more readi-
ly cured we shall have great Reason to be satisfied with
the Change. We are also freed from that loathsome
Disease the Leprosy which frequently afflicted our An-
cestors who were obliged to build Lazarettos or Hospitals
to confine the Lepers & to cut them off from Communication
with the Healthy.

If we likewise consider that our Intellectual
Faculties are as much improved by living on Vegeta-
bles as those of our Ancestors were by living
on gross Animal Substances we would have still
more Reason to be satisfied with the Change in
Diet. That Animal Food dulls the Faculties as the
Gamesters bear Witness. I have heard a Gentleman
who realized a princely Estate by his Skill in Chances
whenever he expected to be deeply engaged in Play in
the Evening he abstained from Dinner & confined himself
to his Room the whole Day mediteting upon &

and calculating the different Chances taking for Nourishment only Tea Coffee or a very thin Broth_.

The fine the Sugar the less subject it is to Fermentation_ Coarse Sugar is more fermentable, hence becomes more acid & laxative. Many however have been deterred from using fine Sugar on account of the Quick Lime which is employed in fining it but we may assure ourselves that not the least Particle of Quick Lime enters in to the Composition of Sugar_ Indeed Quick Lime is employed for the Coarse as well as the fine Sugar & it is not so entirely seperated from the former as the latter_ The fine Sugar should be preferred to the coarse on all Accounts_ The fine possesses all the good Qualities of the Sugar & none of the bad.

The Vegetables preserved with Sugar have the same Qualities with the Sugar itself & no other, except the acrid Substances as Ginger Camphire etc^a which retain some of their original Qualities. In general insipid Substances or such as are rendered so by boiling are preserved by Sugar.

Vinegar Preserves have the same Qualities with the Vinegar itself. They are rendered very difficult of Digestion & are therefore highly improper for Persons of a weak Stomach. Dr Cadogan inveighs much against them, but tho' they may be very hurtful in the Disorders he treats of, the Gout & in all Cases of a weak Stomach, they are a very proper Condiment to

to accompany Animal Food, when a person is in Health.

We have now finished the Consideration of Vegetable Food and are to proceed to speak of Animal Food; which, shall be the Subject of our Lecture, Gentlemen, Tomorrow at the usual Hour.

Lecture 7th.

Animal Food differs from Vegetable in many essential Points—

1 As it is already of an Animal Nature, it requires only Solution & Mixture to be converted into our Fluids, whereas the Vegetable stands in need also of Assimilation.

2 As it is more easy of Digestion it does not remain so long in the Stomach.

3 It is more Nourishing &

4 It disposes to Inflamatory & Putrid ~~Diseases~~ Diseases. The Consequences of a too free Use of Animal Food are all kind of Putrid Diseases, as Putrid Fevers, Scurvy, Dysentery etc.— Animal Food is more stimulating than Vegetables; hence the Fever & Standing Digestion is more considerable after a full Meal of Animal Food than of Vegetable— Animal Food also gives a richer & denser Blood— On these Accounts it should be avoided in all Inflamatory Fevers, Apoplexies and by Persons who are subject to Hæmorrhages particularly from the Lungs. Young Persons especially Children should use Animal Food very sparingly & live principally upon Vegetable Food. Animal Food like every other Stimulant proves injurious by wearing out the Tone of the Stomach. Persons likewise who are employed chiefly in mental Exercises ought to live more upon Vegetable than Animal Food.

The Solubility of Animal Food differs according to the Age of the Animal. The flesh of full grown Animals is

more soluble than that of young Animals – thus Beef is more soluble than Veal, Mutton than Lamb &c. By full grown I mean the most perfect State of, when the Animal has acquired it's full growth, both in Size & circumference, not when grown old, for the Muscular Fibres become rigid & tendinous & the Flesh of old Animals is therefore very insoluble –. Animal Food is more soluble according to it's Alkalescency Venison & all Kinds of Game are of easy Digestion – Animals as they become older are more alkalescent on this Account the Flesh of young Animals is more insoluble than that of old ones! Solubility also differs according to Viscosity – The more viscid & glutinous Food is the more difficult of Solution it is – Of this Truth Jelly is an Instance – This is one of the most viscid Substances & would scarcely be conquered by our Digestive Organs were it not for the Method of dressing it. It is mixed with great Quantities of hot Spices which stimulate the Stomach & excite it into Action by which it is enabled to digest this Food. The Flesh of young Animals is more glutinous than that of old. In young Animals the Glands are large & more numerous than in the old & their Bodies abound more with Mucus and Gluten. In young Animals the Muscular Fibres are more compact with little or no Cellular Membrane interspersed between them & on this Account also young Animals are less soluble than the older in which the Muscular Fibres are separated by Cellular Membrane & Fat – On this Account also the Lean of fat Meat is easy of Digestion while the Lean of poor Meat is of the most difficult Digestion – Meat is more susceptible

according to greater or lesser Alkalescency, & according to its Viscidity - That Meat is most perspirable which is least glutinous - hence Mutton & Venison which are most Alkalescent are most perspirable - Oysters & Fish from their Viscidity & little Alkalescency least perspirable - From these Qualities we see that Oysters & Fish are very difficult of Degestion - They overload the Stomach and increase the Fever that attends Degestion - They remain longer in the Stomach & hence may prove very nourishing but then they should be used only by such Persons as are capable of digesting them, such as work hard or use a great deal of Exercise. Persons living near the Sea & living principally on Oysters & Fish are very Robust - They are liable to be affected with Eruptions on the Skin, Scurvy Dysentery & other Disorders of a Putrid Tendency.

We have by Nature an Aversion from living on Fish for any length of Time - This we observe in the Salmon Fishery. They Servants employed in it make an Agreement with their Masters that they are not to live upon Fish more than two Days in the Week, tho' the Salmon is one of the most delicious & savory Fishes. Solubility differs likewise according to the Manner in which the Meat is dressed. That by much boiling or roasting is rendered firmer & less alkalescent & consequence less soluble - That Meat by boiling is rendered less alkalescent is evident from the Practice in the West Indies & even this Country. In Summer when Meat has a Tendency to Putrefaction we parboil it by which it will keep sweet a much longer Time than it would otherwise do. In the West Indies this Practice is called Jirking. The

The next Subject we are to treat of is Milk. This is of an intermediate Nature between Animals & Vegetables. As it is of so much Importance in both Medicine and Diet it deserves a particular Attention. We shall first treat of its Secretion.

In all Viviparous Animals both Male & Female there are certain glandular Substances called Mamma or Breasts by which the Milk is secreted - They are the softest and least resisting of any Glands of the Body - They are placed outside of the Ribs, free from all Compression being covered only with a smooth, thin, soft Skin. They differ from all other Glands in this Respect, that the latter secrete their different Fluids at all Times while the former secrete only at a particular Time. The Cause of their secreting only at particular Times has afforded great Matter for Dispute amongst Physicians. It appears plainly that there is a great Consent between the Uterus & Mammæ; thus the Breasts swell & become painful at the Time of the Menstrual Flux. This Consent must be owing to Communication of Blood Vessels particularly to an Anastomosis between the Epigastric Artery & the Arteries which go to the Mamma. Whenever the Epigastric Artery is compressed the Blood is determined to the Mamma. Bartholine tells us of a Youth afflicted with a Hernia whose near Pap always began to swell when the Truss which supported the Rupture was tightened by which the Epigastric Artery was compressed. During Gestation when the Epigastric Artery is compressed by the gravid Uterus the Breasts swell. After Birth when that Artery is freed from Compression the Swelling of the Breasts subsides

from the new Determination which takes Place. They swell remarkably after Birth upon the Cessation of the Lochia when the Fluids are determined from the Uterus to the Breasts. From this new Determination it is that we may understand why in Infants a few Days after Birth there is sometimes Milk secreted. After the Umbilical Cord is tied the Blood which formerly passed that Way runs into a new Channel. This new Passage is productive of such an Impetus as to produce a Discharge of Blood from the Uterus of Infants - Instances of this you will see in the Transactions of the Royal Academy of Sciences at Paris. From what has been said we are led to ascribe the Secretion of Milk to a Derivation of Blood from the Epigastrick Artery to the Breasts intirely independant of Plethora. All Women at Childbirth are not Plethoric yet they secrete Milk plentifully. The Milk begins to be secreted immediately after Birth, tho a great Deal of Blood has been lost at that Time - May there are Instances of Women loosing several Pounds of Blood on Account of Diseases, besides the Blood which they had lost in Delivery & yet Milk was secreted plentifully. It is even said that some Women have suffered a Diminution of 16 lb. of their Weight in 6 Weeks Time & yet gave Milk sufficient to nourish their Child. Tho' the Secretion of Milk depends upon the Derivation of Blood to the Mamma, it is considerably increased by Suction; may there are Instances of a Flow of Milk being brought on by Suction in Virgins & even in Men - Such Instances occur in Haller Ruysch & Delpraaf. After a Flow of Milk has been brought on

if the Child is not applied to the Breasts or if they are not sucked the Milk will be lost. The Child should be applied early to the Breast on this Account & when this is done the Ductii Lactiferi are stimulated & the Fluids are discharged by which Obstruction & Stagnation in the finer Vessels are prevented which often occasion Schirri and other Disorders of the Breasts. In the Lying Hospital at London since the Physicians have obliged the Women to give their Children within 24 Hours after Delivery not above 2 out of 1400 have been afflicted with Disorders of the Breasts whereas formerly when the Child was not applied to the Breast for 3, 4 or 5 Days after Delivery, their Complaints were very frequent.

Milk consists of three Parts

1 The oily Part or Cream. This in a great Measure resembles the Vegetable expressed Oils & seems to be derived from them —

2 The Coagulable Part which is of an Animal Nature & greatly resembles the Whites of Eggs.

3 Water in which some saline & saccharine Matters are dissolved. These three Substances may be procured separately in the Form of Butter, Cheese & Whey.

Milk has been commonly supposed to be taken up into the Lacteals without suffering any Decomposition This Notion is erroneous, it is decomposed in the Stomach coagulated, fermented & afterward taken up by the Lacteals and mixed with the Blood.

As Milk is an intermediate Nature between Animals & Vegetables it is particularly calculated for the

Nourishment of our Bodies - It is particularly proper for the Nourishment of Children & we find it is furnished by Nature for them as soon as they are born - For Person in an Hectic Fever it is peculiarly adapted. Milk has the good Qualities of both Animal & Vegitable Food & is exempt from any of the Inconveniencies that attend the Use of either - This it is not subject to the Vinous Fermentation & hence is not liable to produce Flatulencies &c. which arise from Vegitables - It is likewise not attended with the Fever & Stimulus of Animal Food - It is suitable to those only who have a strong Acid in the Stomach for in this the Coagulum or Curd that is formed is so hard as to be incapable of Digestion Milk may also prove hurtful to Persons recovering from Intermittents as it tends to cause Refrigeration by its Acescency.

After, Mares & Human Milk do not so easily coagulated as the Milk of the Cow, Goat & Sheep & form a more soluble Coagulum. The former do not contain so much Oil & Coagulable Part & are very proper for Persons without Fever whilst the latter from their Acescency are better calculated for Persons with Fever - This last may be coagulated by Acids & different Coagula & hence are not so proper in weak Stomachs. The Milk of the Cow & the Goat contain nearly the same Quantity of Cream, Coagulable Part & Whey - That of the Sheep contains less Whey & Coagulum than the others - Human & Ape's Milk have been compared to the others in some Disorders - It may not be amiss to inquire here into the Nature of this Preparation & the Foundation of it. Ape's Milk is not so acescent as Cow's & cannot be coagulated by the various Coagula & Rennets - By Rest or Stagnation it separates

Spontaneously into Several Parts - The coagulable Part falls to the Bottom - The Cream arises to the Top & the Serum occupies the middle Part - It contains a large Quantity of Whey & every little Cream or Cheese - It is even said that no Butter can be obtained from Ass Milk. Mares Milk is very similar to that of Asses - contains still less Oil -

Human Milk is not coagulated by the Rennet commonly employed for coagulating Milk - even the strongest Acids will not coagulate, neither can this Effect be produced by boiling it, but if it is placed at Rest in a Heat of 96°. this Separation will take Place readily - This Separation takes Place in the Stomach as appears when Infants throw up their Milk by Vomiting. From all this we see that the Distinction is founded in Reason. When the Stomach is so weak as to curdle Cow's Milk it will sometimes curdle Asses or Human Milk. I can accordingly have Instances of Persons who were snatched from the Jaws of Death by sucking a healthy Nurse. Human Milk differs very much in different Women - In some it is white & thick, in others diluted & thin with little Cream. The Milk of Nurses is very little affected by their Food much less than that of ruminating Animals. It is doubtful whether Purgatives given to the Nurse will affect the Child - Nurses labouring under Diseases very often give good Milk - There are Instances of Nurses who are affected with the Venereal Disease while the Children who sucked them continued free from it - I have known two Instances of Nurses having taken Mercury until their Mouths were sore whilst the Children were not in the least affected; nor will their Milk change Silver blacks or Gold White as we know the Perspiration of People taking Mercury will do. This

This strongly confirms an Opinion formerly advanced that the State of the Secreted Fluids depends more upon the Secretory Organs than the State of the Fluids from which they are Secreted. The Passions of the Mind have a considerable Influence upon the Milk. There are Instances of a sudden Fit of Passion producing such a Change in the Milk that the Children sucking the Breast have been thrown into violent Convulsions & Death has ensued when the Milk has not been thrown up. In these Cases the sudden Change produced must be owing to an Alteration made in the Breasts or Organs of Secretion. This Change is not confined to the Breasts or other Organs of Secretion, it also occurs in the Organs of Digestion. This sudden Irritation or unexpected Tidings affect Digestion & will suddenly render every Thing contained in the Stomach vitiated & corrupted. We are next to speak of the Part from which Milk is secreted. There have been very different Opinions on this Head. Some assert that Milk is secreted from the Blood whilst others think it is intirely derived from the Chyle. It is very difficult to determine the Point as we do not know the true Analysis of Chyle nor how much enters the Blood in a given Time nor how long before it is converted into Blood. The Advocates for the latter Opinion assert that it is very improbable that such large Quantities of Milk as are secreted in one Day, there being Instances of some Women that have given 6 Quarts in 24 Hours & some Cows give 24 Quarts in that Time, should be derived immediately from the Blood. They likewise shew that Milk & Blood are of a very different Nature. Milk resolved into a coagulable Part & Cream & Whey. Blood is putrescent. There seems to be some Truth in the latter

Argument - the former is not at all conclusive because as I have said above we know not the exact Quantity of Chyle that enters into the Blood in a given Time nor how long it is before converted into Blood. The Opinion of Milk being immediately derived from the Chyle is further confirmed from Dr Young's Experiments on a Bitch whose Milk he found to be alkalescent when she fed upon Animal Food but the contrary when she lived upon Vegetables.

Milk by boiling is rendered less acescent & consequently less laxative - it should be used when new rather than when long drawn so that it has had Time to separate. The Milk of ruminating Animals is more difficult of Digestion than Human Asses or Mares Milk, it contains more Oil is more acescent & partakes of the Nature of Vegetables - It is therefore very serviceable in all Cases of Putrid & Inflamatory Diathesis. In these Cases Butter Milk seems to be rather better as it contains less Oil & is more acescent, cooling & laxative - The Properties of Whey are nearly the same with those of the Butter Milk & may be employed in the same Cases - This is excellently calculated to produce a Change in the State of the Humors & will often be serviceable when the pure Milk will be improper. Milk is very excellent for Persons recovering from Inflamatory Fevers - Milk is very serviceable in Hectic Fevers & Consumptions - In these Cases Human & Asses Milk have been preferred - Persons in these Cases should not restricted to any Quantity but should take as much as the Stomach will bear. Riverius & Hoffman give us Instances of Persons rescued from Death by this Practice. Rennet Whey is likewise very serviceable in these complaints & in internal Ulcerations of all Kinds. This

This will often be obtained when Milk is rejected. A Milk Diet has been recommended in the Gout as it is accompanied with Inflamatory Symtoms, but in Old People who are generally afflicted with this Disorder the Nervous System is generally weak & requires something more stimulating than Milk. It is not safe to mitigate the Inflamatory Symtoms by Evacuations of any Kind. Tho' some have found Relief from a Milk Diet it is not always safe to adhere to it in all Cases, After the Stomach has been used to stimulating Food. A Milk Diet will indeed prevent the Appearance of the Gout in an Inflamatory Form in the Extremities, but other Disorders will be produced as fatal in their Consequences if not more so than the Gout. Old Persons should have a considerable Degree of Vigor remaining if they expect to be relieved of the Gout by a Milk Diet or indeed by any Medicine whatever. In young People there is Nothing to forbid the use of Milk in this Disorder & it is particularly proper to correct an Inflamatory Diathesis. In these accompanied with a proper use of Exercise & Abstinence from Wine & Venery a Milk Diet will be productive of very happy Effects.

If you recollect what I said on the Scurvy you will easily see that Milk is very useful in that Disease especially Cows & Goats Milk & more particularly Whey & Butter Milk.

Milk is very serviceable when Poison has been inadvertently swallowed. There is no Remedy better calculated for Emergencies of this Kind - It involves & obtunds the Acrimony of the Poison & by its demulcent Effects guards against

the Spasms of the Stomach. Hoffman tells us of ten Boys who had taken Arsnic mixed in an Oaten Cake for the destroying of Vermin who were all cured by drinking plentifully of warm Milk. It defends the tender Coat of the Stomach & Guts from the Acrimony of the Poison & serves as a very good Vehicle to carry it off. This is likewise this Advantage in Milk, that when Children have swallowed Poison we can more easily persuade them to drink a large Quantity of it than of sweet Oil or warm Water. Persons who have swallowed Poison should live for some Time after they have been freed from any immediate Danger upon a Milk Diet taking now & then a Dose of Castor Oil, for there are Instances of Persons dying from Poison being swallowed a considerable Time after they were thought to be quite out of Danger -

Milk is very useful in Disorders of the Bowells as Diarrhoea & Dysentery which are often mitigated & sometimes cured by the use of it after more potent Remedies have failed. In these Disorders the natural Mucus of the Intestines is abraded & the Milk by its demulcent & glutinous Quality supplies its Place. By boiling Milk is rendered more glutinous & Spaceous & consequently is then better adapted for these Diseases. To render the Milk more glutinous various Substances have been added. A Woman near Germantown acquired great Fame for a supposed Specific she professed for a Phthisic. Upon Inquiry into the Matter I found her Secret consisted in boiling a Sheet or two of white Paper in Milk. Another domestic Medicine is 1/4 ℔ of Mutton Suet boiled in a Pint of Milk & drank at one & a 2d Time occasionally repeated. This I have seen with singularly good Effects. All these Preparations act by their demulcent & oily Qualities defending the Juices & supplying the Place of

of the natural Mucus. Marsh Mallow Compey root, Sago or Salep or if the composition is to be more Medical, Gum Tragacantha or Gum Arabic boiled in Milk will produce equally good Effects.

Milk is particularly proper for producing a change in the Humors when we wish to extirpate a constitutional Disease in which the Fluids & Solids are affected. Milk has been recommended in Cancrous & Scrophulous Diseases - In these there is generally a vitiated State of the Humors & a Change in the Humors I have already told you is only to be brought about gradually & more by Diet than any thing else - Milk is better adapted for this Purpose than any other Substance we can employ. Sylvaticus tells us that he relieved a Person of a cancrous Tumor in the Neck of the uterus, which had been there a considerable Time by a Milk Diet alone. When a Cancer is ulcerated a sanious, ichorous Matter is discharged which causes great Pain to the Patient - This Discharge is increased by every thing that is stimulating & is rendered much milder by a Milk Diet. Milk is also of the utmost utility in Venereal Complaints. Hoffman tells us of a Military Gentleman who had been for a long Time afflicted with the Venereal Disease & was at last cured by a Diet of Ass Milk without any other Remedy. The late Dr. Monro likewise gives us the Case of two young Gentlemen who were afflicted with Venereal Ulcers for which they had taken a Variety of Medicines and had been repeatedly salivated - The ulcers however continued to increase both in Breadth & Depth. The Doctor at length advised them to go into the Country & live solely upon a Milk Diet - They followed his Advice & in about six Weeks Time were perfectly cured.

From hence we see that Milk deserves the most

important Consideration. It is furnished by Nature for all young Animals & is particularly fitted for their Nourishment. It claims the first Place in Dietetic Regimen.

We have now finished the Consideration of the Nutrientia We shall just briefly recapitulate what we have said on this Head in the preceding Lectures.

We began with observing that all our Aliment was either of an Animal or Vegetable Nature & we asserted that man was destined to live upon both. This we proved from the Structure of his Teeth & Intestines & found it strongly confirmed from the Advantages of a mixed Diet & the Disadvantages of either separately. We in the next Place considered Degestion in which we found the Saliva, Liquor Gastricus, Bile & Pancreatic Juice were of considerable Service. We then took Notice of some Hypothesis concerning this Process & found that some ascribed it to a Solvent, whilst others supposed it to be owing intirely to Mechanical Force, who considering the Stomach as a Muscular Organ & computing the Force of it's Muscles from thence supposed the Force of the Stomach to be more than sufficient to grind any Aliment received into it. M. Reaumur's Experiments showed us that neither of these were intirely right tho perhaps neither were intirely wrong. We made it appear that Degestion is at least completed in the Human Stomach by Fermentation of which there are three Kinds - Vinous, Acetous & Putrefactive which were prevented from going too far by the Liquors above mentioned but principally by the Bile which we found acted by it's Bitterness & that this was neither alkalescent nor putrescent. We found that Vegetables were nourishing according to the Proportion of Sugar & Oil they contained & they are more easy of Digestion & less noxious in Proportion as they

Parts are more intimately blended; hence Grain in which they are intimately blended is very wholesome, while fruits in which they are not properly united are difficult of Degestion and apt to prove flatulent—

We also observed that a Vegetable Diet is improper for a Person troubled with Flatulence, Acidity, Indigestion & Costiveness arising from this last Cause & such Persons as are troubled with Hysteric & Hypochondriac Diseases; that it produces Heartburn, Colic, Diarrhoea & Cholera Morbus; that is very useful where there is an Inflamatory or Putrid Deathefis; that in these last Cases Animal Food is highly improper, but that it is useful where there is a prevalency of Acid. That Animal Food is more soluble than Vegetable and that it is more soluble in Proportion to it's Alkalescency and less Degree of Viscosity. We also found that Meat which is over done is less soluble than that which is rarely done. Tho' some Persons have lately asserted that Meat is more soluble in Proportion as it is done. This at least appears to be the Case in the Person on whom Dr. Stevens made his Experiments which are enumerated above—

We also treated of Condiments & found that the Aromata were very improper to accompany Animal Food, but were very useful with Vegetables & therefore they grow in warm Climates; that the Cress Kind & Alliacia were the best for Animal Food; that Salt was the most grateful Condiment; that it excited Appetite & when pure resisted Putrefaction; that Sugar is Antiseptic, nourishing & destroyed Worms; that Vinegar resists Putrescency corrects the Inflamatory Deathefis & assists Degestion.

We

We also spoke of Drinks & found that they were of use to supply Fluid to the System & facilitate Digestion; that when taken in moderate Quantities they assisted Digestion & assisted Nutrition, but that taken in large Quantities they hindered Nutrition.

We also observed that a Liveliness of Imagination Delicacy of Feeling, Quickness of Apprehension, Strength of Judgment &c. more remarkably accompanied a weak than a robust Habit of Body. Studious Persons & those who prefer the Strength of the Mind to that of the Body should live principally upon a Vegetable Diet. Thus we finish the Nutrientia. ⟶

Lecture 8th.

The next Class we are to consider are the

Adstringentia.

By this Term we mean such Substances as have a Power of approximating the Fibres of the Body and increasing their Cohesion. They will exert their Effects not only on the living Body but also after Death. Thus Oakbark which is a very powerful Astringent is employed in Tanning to render the Hides of Animals dense strong & firm. This Property is not peculiar to the Oak bark But is common to all the Astringents. The Number of Astringents is very great. They are obtained from the Mineral & Vegetable Kingdoms. They are discoverable by the following Signs. Upon taking them the Parts are very much contracted & corrugated, the Palate feels a disagreeable Roughness & the Lips become pallid. The Vegetable Astringents likewise strike a black Colour with Iron upon being mixed with any of the Preparations of Iron.

Hoffman speaking of the use of Astringents says. "If the Administration of any Medicine requires great Caution it is that of Astringents for when given unseasonably they produce the worst of Consequences." Thus by the improper use of Astringents we find Cattle Fevers

Cachexies, Adematous Swellings, Colics & Spasmodic Affections of different Kinds produced.

Synonomous to Astringentia are the Terms Roborantia, Constringentia, Astantia, Consolidantia, Styptica which regard the Solids - With Regard to the Fluids are the Coagulantia, Condensantia, Inspissantia, &c.

With Regard to the Operation of Astringents some suppose they act wholly on the Simple Fibres while others imagine they act on the Nerves of the Stomach & by Means of them extend their Effects over the System. Those who favor the first Opinion suppose the Astringent is taken up with the Blood by Means of the Circulation conveyed to the different Parts of the Body where it will exert its Effects - But if we consider that if this was the Case it would take some Time before the Medicine could produce its Effects in the different Parts, whereas when Astringents are given internally for checking Hemorrhages of distant Parts e. g. of the Uterus we find the Effect produced almost as soon as the Medicine is arrived in the Stomach - This single Consideration is sufficient to show us that this Opinion is not well founded: There are however other Arguments which tend to show this - Thus if the Astringent was distributed thro' the whole Mass of Blood a very little of it would arrive at a particular Part, therefore to produce any considerable Effects we must give it in large Quantities We find on the contrary that small Doses will in a short Time produce very considerable Effects - also if some particular Astringent were to without undergoing any Change mixed with the Mass of Blood they would cause

a Coagulation of the whole Mass which we know would inevitably occasion the Death of the Animal. From these Arguments we find that Astringents cannot exert their Effects by Means of the Circulation and hence we are led to adopt the other Opinion, viz: that Astringents act solely upon the Moving Fibre by Means of the Nerves of the Stomach. It is true Astringents will act on the dead Body but they act only the Fibres with which they immediately in Contact whereas in the living Body they extend their Effects over the whole System - this they undoubtedly do by acting on the Nervous System.

Astringents are employed internally & externally to check Hemorrhages. With Regard to the internal Exhibition of Astringents in Hemorrhages it will be necessary to attend to the following Rules - In Hemorrhages arising from a Suppression of some natural Evacuation or even in some unusual Place it ought not to be suppressed until the natural Evacuation is restored - Thus if from the Suppression of the Menses an Ulcer is formed in any Part from which Blood issues periodically it is not to be suppressed until we have brought on a Flow of the Menses. After the Humors have been brought into their proper Channel small Doses of weak Astringents may be given -

Any Hemorrhage become habitual indeed any unusual Hemorrhage whatever ought not suddenly

to be suppressed. We should first use Bleeding & the Antiphlogistic Regimen in Order to give a new Determination to the Humors; if Those fail small Doses of weak Astringents may be applied. In Case of Hæmorrhage there is generally a relaxed State of the Intestines producing Costiveness. This is apt to be increased by the Use of Astringents we should therefore combine gentle Laxatives with our Astringents. When a Hæmorrhage is so violent as to threaten the Life of the Patient we should have immediate Recourse to Astringents without laying any Attention to the Inconveniencies arising from their Exhibition. In this Case we should use the most powerful Styptic Astringents. If the Patient is Plethoric of a strong robust Habit of Body Bleeding will be very necessary as Hæmorrhages in such Persons are generally attended with Febrile Symptoms. If this is not the Case Hæmorrhage is owing to Relaxation as it is often the Case after Amputation Bleeding will only increase the Relaxation & will render the Hæmorrhage greater. In this Case we should trust to Astringents alone. Doctor Monro's Observations on this Head are very good. It may be of some Service to you to know that recent Hæmorrhages may be suppressed with more Safety than Those which have continued a long Time. No Hæmorrhage ought to be intirely suppressed until the Cause producing it is removed

In Hæmoptoe the Use of Astringents is

is doubtful - If the Discharge is checked suddenly the Blood is accumulated in the Lungs & Suppuration & a Phthisis Pulmonalis is often produced - Astringents should not be given during the Paroxism but may be employed after it in small Doses - Critical Hamorrhages should not be suddenly stopped unless they threaten the Life of the Patient which is seldom the Case.

Astringents are likewise used externally for the checking of Hamorrhages - Here they may act in two Ways - by contracting the Solids or by coagulating the Fluids with which they immediately come in Contact. They are however of no Service in this Way. If only small Vessels are injured dry Lint & Pressure will more effectually stop Hamorrhage - If a large Vessel is wounded a Ligature will check the Hamorrhage sooner & will be safer - = —.

Astringents are also employed in the Cure of Ulcers. It has commonly been supposed that there were Medicines which will supply Flesh when lost hence called Sarcotics. This we now know to have no Foundation. The only Medicines which tend to produce a Cure of Ulcers are those which conduce to the Formation of Pus - Ulcers often heal with Difficulty from the Laxity of the Parts - Astringents by increasing the Strength & Elasticity of the Fibres will tend to bring on that Degree of Inflammation which is necessary for the Formation of good Pus. The Use of the Peruvian Bark is too well known to be Doubted - It certainly acts by its Astringent Qualities and

Astringents of the Kind may have the same Effects. Astringents are also employed in Gangrenes. They not only prevent Putrefaccency but also cure it after it has taken Place. It has also been proposed to inject Astringents into the Abdomen for the Cure of Dropsies. The Water may be all drawn off by the Operation of the Paracentesis & it was thought that Astringents might then be injected into the Abdomen and by strengthening the Parts prevent a Return of the Disorder. This Practice is now deservedly rejected. From Dissection it appears that the most frequent Cause of Dropsies are Obstructions of the Liver & other Viscera and it cannot be cured unless these Obstructions are removed. Astringents would rather tend to increase than remove these Obstructions. If Dropsies were in general owing to a Laxity of the whole System which however is not the Case it would be in Vain to strengthen the Vessels of any particular Part without restoring Tone to the whole System. Astringents are hurtful in the Hydrops Pectoris & in all encysted Dropsies they may be of Service in Anasarca by strengthening the relaxed & weakened Habit of Body if Friction & moderate Exercise be at the same Time applied—

Astringents are likewise employed in Diarrhœas & Dysenteries. These two Disorders are generally confounded: they are however different tho it is difficult to distinguish them as there is scarcely one Symptom of either which does not at Times accompany the other. A Diarrhœa as I told you when speaking

of Fæces arises from Refrigeration. In it the Stools are liquid frequent & the Natural Color. It is also accompanied with Gripings & Borborigmi. A Dysentery is occasioned by putrid Exhalations. This is perhaps the principal Thing which will enable us to discriminate between the two Disorders In this the Stools are frequent but not so copious as in a Diarrhœa & are slimy & frothy & accompanied with Tenesmus. a Dysentery according to the best Authors is attended with Fever. Astringents should not be given in the Dysentery until the Prima Via are first evacuated. For this Purpose we should employ such Substances as have some degree of Attrition. Rhubarb & Ipecacuanha are generally employed. After the morbid Matter has been evacuated a Discharge is frequently kept up from Laxity. In this Case we may safely use Astringents & the Peruvian Bark is one of the best we can employ —

Astringents have likewise been recommended in Evacuations of Mucus as Gonorrhœa & Fluor Albus.

In the first Stage of a Gonorrhœa when there is an Ardor Urinæ, Inflamation of the Urethra & Glandes, Bleeding & the Antiphlogistic Regimen are certainly to be employed; tho' often here Some use Injections of Sacch: Saturni which as we shall see hereafter is one of the strongest Astringents, but this Practice appears to be highly improper. When the Inflamation is somewhat abated we may use Astringents sparingly; when the Inflamation is quite gone Off & the Running still continues we may use Astringents with Safety. It will be best to give them internally & if this is not sufficient they may be employed externally when Balsamics &

Demulcents will not effect the Cure.

The Fluor Albus is a Disease which seldom afflicts young Women, but most commonly occurs in Women advanced in Life who have borne several Children & proves a frequent Cause of Barrenness. If it has continued for any Length of Time we must observe the Rules laid down for the Exhibition of Astringents in Hæmorrhages. We should make ourselves particularly acquainted with the Cause of this Disease. If the Cause is owing to Tumor & Ulcerations of the Uterus Astringents will be highly improper. In this Case we must employ such Remedies as have a Tendency to resolve such Tumors. Of these the Cicuta is the principal This with gentle Cathartics will often produce a Cure. When the Discharge depends intirely upon Laxity & Debility of the Uterus Astringents become highly useful.

Astringents are often employed to excite the Secretions & Evacuations. This may at first appear rather unaccountable, but if we consider that the Suppression of different Evacuations is often owing to a Weakness & Relaxation of the Part we will easily see how Astringents by restoring Strength & Tone to the Part will also restore the Evacuation. In this Manner Astringents prove serviceable in the Chlorosis & in Costiveness arising from a weakened Peristaltic Motion of the Intestines. Astringents are likewise recommended in the Stone & Gravel. They mitigate the Pain attending these Complaints & sometimes intirely cure them. We have such well attested Facts in Proof of their Use in these Complaints that we can have no Doubt of it. Van Swieten & DeHaen assures that the Uva Ursi, which we shall find to be one of the strongest

Vegetable Astringents mitigates & sometimes cures the Pains arising from the Stone, whilst the Stone itself is not altered either in Size or Shape, as appears from the Catheter. Ducher asserts that all the most famous Lythontriptic Medicines were in Use were either Astringents or acted as such. This we shall consider more fully when we come to treat of the Virtues of Lime Water & the Uva Ursi.

The Use of Astringents in Inflamation is doubtful. The Proximate Cause of Inflamation is an increased Action of the Vessels of the Part affected. This may be brought on by various Causes, Thickness & Stagnation of the Blood which may be brought on by too great Straitness of the Vessels or by a Laxity of the Vessels & external Stimuli. When there is too great a Action of the Vessels as in the young & strong Bleeding & the Antiphlogistic Method are most proper. In the old infirm Inflamation is generally brought on by a Laxity of the Vessels. In this Case Bleeding is improper and Astringents should be employed. In the young Inflamation generally terminates in Suppuration in the old in Gangrene in both which Cases we have seen Astringents employed.

We are now to speak

Of Particular Astringents.

They are either Fossil or Vegetable. The Fossil are divided into the Earthy, Saline & Metallic. The Earthy are subdivided into Bols Clays & Absorbent Earths.

Bols are of little Consequence in Medicine & might

perhaps be intirely rejected, for as they are insoluble in Acids and the Fluids of our System no Effects can be expected from them. They have been said to act as Astringents as they contain Iron or Allum, but if we want to employ these Substances we should employ such Preparations of them as will enable us to ascertain the Dose with more certainty than we can in the Bole. If they exert any Effect in our System, they are I believe bad ones. They have indeed been alledged perhaps with Propriety of lodging in the Plicæ of the Stomach & Intestines & there forming or serving as a Nucleus for the Formation of Calculous Concretions. They may be employed externally to dry up excessive Serous Discharges by the Skin, but here any dry Powder will answer equally well.

Clays or Argillaceous Earths are distinguished from Absorbent Earths by their not effervescing with Acids. They are now never employed in Medicine as they have little or no Effects on our System —

Absorbent Earths effervesce with & neutralize Acids of all kinds & for this Reason may be employed when there is an Acid in the Stomach. They have been used in Diarrhœas & Dysenteries. When a Diarrhœa arises from a prevailing Acid, which is frequently the case in Children it is discovered by the green Colour of their Stools Magnesia, Chalk, Crabs Eyes or any other Absorbent Earth by neutralizing the Acid may cure the Disorder They do not act by any Means as Astringents. They are much oftener given with a View of opening the Bowels. As Dr Pringle has found Absorbent Earths to be Septic by destroying the Acid in the Stomach they are

highly improper in the Dysentery we however shall see them prescribed in this Disorder. Thus calcined Hartshorne is added to the Decoctum Album of the Pharmacopeia Pauperum of the Edinburgh Infirmary. Chalk has been substituted for the calcined Hartshorn, but its Effects in this Case are certainly pernicious.

We are next to consider the Saline Earths as Astringents; of these the principal & perhaps the only one is Alum.

This is formed by the Combination of the Vitriolic Acid & a particular Kind of Clay. The Alum which we have in our Shops is artificially formed of this Clay. Of this we have two Kinds the Roman & the Common Alum and whatever Difference there may be with Regard to their Use in Dying there is certainly little or none in Medicine. When Alum is found natural it called Alumen Plumosum.

Alum is one of the strongest & at the same time safe Astringents. As it is easily soluble in the Fluids of our Body its Effects are soon extended over the System. It is of more general Use than either the Vegetable or Metallic Astringents for its Operation is much quicker & it acts in smaller Dose than the Vegetable Astringents & And as it has a Sedative Quality combined with its Astringency it may be employed where the Metallic Astringents would by Reason of their Stimulus prove hurtful. Alum has been employed with Advantage in Inflamations of the Eyes more especially when it is owing to Relaxation & Debility as in old People

I have already shown how Laxity may occasion Inflammation by causing an Accumulation of Blood in the Vessels of the Part. When Inflamation is brought on by Laxity general Bleeding is pernicious but if there is too great a Quantity of Blood in the Part Topical Bleeding by Cupping or Leeches will be necessary to prevent a Rupture of the Vessels. The general method of employing it in this Case is to rub a Peice of it in the White of an Egg ~~Cupple it to the Eye~~ until it becomes hard & then spread it on a Rag. Alum is very useful in relaxed & Putrid Gums in the Scurvy mixed with Sage Tea & Honey to make a Gargle. It may also be used in this Way in Anginas arising from Relaxation with good Effects. Sydenham in this Case recommends the Vitriolic Acid, but Alum will answer as well if not better.

Alum has been applied externally to dry up Excretions of the Skin as excessive Sweating under the Arm Pit but as it is often improper to dry up such Excretions at all it is evident the use of Alum in this Case must be very pernicious & often attended with eminent Danger. I once saw a Case where from drying up an Evacuation of this kind the Humors were thrown upon the Bowels & a Chronic Diarrhea brought on which notwithstanding every Method was made use of for its Relief it terminated fatally. In violent Hæmorrhages Alum is one of the Substances most to be depended upon when given internally. It may also be applyed externally. Bleeding at the Nose may be stopped

by filling the Nostrils from which the Blood issues completely even tho it should put the Patient to some Pain with a Tent or Dosil dipt in the Solution of Alum, at the same time applying a cloth dipt in cold Vinegar or Water to the Forehead, Crown of the Head & Back of the Neck. These different Applications are you see intended to cause Refrigeration or to moderate the Impetus of the Blood. Alum taken internally acts both as a Sedative & Astringent in checking Hæmorrhages. Helvetius' Preparation of Alum for which he obtained a Premium & Pension from Lewis the Fourteenth of France is made as every Dispensatory will inform you by melting Sanguis Draconis over the Fire in an Iron Ladle & adding to it as much powdered Alum as it will take up. The Sang: Drac: gives no additional Virtue to the Alum but only serves as a convenient Vehicle to form it into Pills. In the Edinburgh Pharmacopœia Ter: Japon: is substituted for the Sang: Drac: to little Effect as the Alum can receive no additional Virtues from it. The best Method that which I invariably follow is to form it into Boluses with Conf: Ros: from 5 to 10 drops ℥ss in a Bolus to be repeated every Hour or Half Hour if necessary. Dr. Thompson in the Medical Essays tells us that in violent Hæmorrhages of the Uterus he has given ℥ss quoq: hora few Stomachs however can bear such Doses without Nausea & even Vomiting & some should endeavor only to moderate & not to stop too suddenly Hæmorrhages small Doses frequently repeated should be preferred. As Nausea is so apt to attend the Use of Alum that it often renders

the Exhibition of it very difficult. Dr Malorin assures us that if we combine a little Cinnabar with the Alum it will prevent the Nausea. However this be there is no Doubt but Athertius Method which I generally pursue is very rational viz. to add Opium to Alum. This will prevent the Nausea & give the Alum Time to exert its Astringent Effects —
Dr Grathuys assures us that Alum is of Service in the Colica Pictonum. Dr Thompson recommends it in the Fluor Albus —
Dr Cullen advises it to be employed in Diarrhoea & Dysentery where he think it will act not only by its astringent but also by its Antiseptic Qualities. It is also said to be serviceable in Intermittent Fevers when combined with Aromatics & taken just before the Fit comes on. It is also recommended in Continued Fevers. With Regard to its Use in these Disorders I can say Nothing as I never have had Occasion to make Trial of it in those Cases. I am not forward in making Experiments upon my Patients, tho' if the Medicines usually found to succeed in these Cases should fail I should have no Objection to trying the Alum but even then I should feel very uneasy whilst my Patient was under the Operation of a doubtful Remedy.

Lecture 9th.

We are in the next Place to enter upon the consideration of Metallic Astringents. The first of these is

Copper.

This is a Metal Soluble in our Fluids & in all Saline Substances — It may be combined with Acids, Alkalies & Neutal Salts. If there is any Difference in the Preparations those with Alkalies are the most stimulating, with Neutral Salts the mildest & that with Muriatic Acid the most powerful Astringent. Copper is a very powerful Stimulant & excites Vomiting when taken even in very small Doses. As the combinations with the Neutral Salts are the mildest we should always prefer them.

Copper has been used with very good Success in Dropsies in which Case by its Stimulus it proves a Diuretic and Purgative at the same Time by its Astringency it gives Tone to the System. It is employed in Hemorrhages but in this Case it is inferior to Alum or the Preparations of Lead. The Roman Vitriol is employed externally to check Hemorrhages which it does not only by contracting the Solids but also by coagulating the Fluids with which it immediately comes in Contact. Boyle in Cases of Hæmorrhage recommends the Cas Veneris but since his Time Physicians have employed more Time in disputing concerning the Preparation of this Medicine than in making Trials of its Efficacy. ~~Boyle~~ Some have asserted that it is a Preparation of Iron. Boyle himself tells us it is a Preparation of Copper indeed no Preparation of Iron can produce the

the same Effects with the Cus Veneris. There are Directions for obtaining it in Crystals in Pom: 1 Dil: Stat: Cuprioso: It is in short this. Dissolve any Quantity of Pom: Vitriol in Distilled or Rain Water then filter the Solution & to this filtered Solution add Sp. Sal: Amon: Vol: until Nothing more will precipitate, use the Spon or highly rectified Sp. Vin: to separate the Water which is to be poured off & elegant small Saphire colored Crystals will be found which are to be kept after being sufficiently dried in a Bottle well secured from the Air. In this we have all the Advantages & never any Muriatic Acid combined with the Copper. This is a very powerful Astringent & Antispasmodic & takes off the Mobility of the Nervous System - Hence it is of Service in Cases of Universal Laxity e.g. the Rickets as Mr. Boyle observes. It has been used with Success in the Mania & Epilepsy. As an Instance, A Man afflicted with a real Epilepsy was perfectly cured of his Complaint by this Medicine in the Royal Infirmary at Edinburgh. It may be given in those Cases from Gr. 1 to Gr. v. made into Boluses with Conf: Ros: It is best to begin with small Doses & increase it gradually. Dr. Cullen gives this Medicine & likewise called Cuprum Ammo: The Preference to all those Medicines that have been recommended in the Epilepsy. Boyle recommends his Cus Veneris as an Anodyne & says that it acts without the Inflamatory Qualities & Restringency of Opium. Now consider the Properties of Copper we will find it difficult to

assent to this Assertion & Experience does not confirm it. We may here observe what Fallacies even great Men are liable to fall into. The Ens Veneris in some particular Cases by acting as an Antispasmodic might prove anodyne, but on this Account to prefer it to Opium would be highly absurd. Bayle likewise recommends it in Petechial Fevers accompanied with Subsultus Tendinum & says it is particularly useful in taking off the Nervous Symptoms. In this Case also its Effects are doubtful & I would never employ it unless the Medicines generally found to succeed in these Disorders should fail. Even then I would employ it with Reluctance.

All the Preparations of Copper applied to Worms out of the Body instantly destroy them & there is no Doubt but they would produce the same Effects within the Body if they could be retained in Sufficient Quantities on the Stomach. A single Drop of a Solution of Copper in the Vol: Alk: vomited a Child to whom it was given. The Cuprum Ammo: is more likely to succeed than any other Preparation. The Roman Vitriol has of late been employed in the London Hospitals for the Cure of Intermittents frequently with good Success. The Dose is from Gr. ½. to Gr. 1.—

Copper is employed in Germany to prevent the Hydrophobia consequent upon the Bite of a Mad Dog. The Dose is ℥ß of Copper Filings strewed upon buttered Bread. An experienced Physician of Copenhagen assured me that he had given it frequently to Persons who told him they had been bit by Mad Dogs. I should not have mentioned this did I not find that Doctor Buniden of the Society at Berlin mentions it & tells us that

he had tried & that it never failed of Success. There is no Reason to doubt of this Gentleman's Candor or Veracity, but whether the Dog was really mad ought to be inquired into. Persons who are bit by a Dog being apprehensive that he is mad make use of any Medicine recommended to prevent the Hydrophobia & when this does not appear they ascribe it to the Efficacy of the Medicine, when afterwards it appears that the Dog tho' vicious was not mad: It appears to be this that deceived Dr. Meadowcroft Regard to his Powder which it is probable never produced any good Effects in a single Case of Hydrophobia from real Canine Madness. This Disease is of a Spasmodic Nature & is often attended with violent Convulsions. I had an Opportunity of observing this & the Progress of the Disease in a Girls of 8 Years of Age in the Edinburg Infirmary, who notwithstanding every Thing was attempted for her Relief died in a short Time. Possibly Copper which is violently astringent & Antispasmodic may prevent the Hydrophobia from coming on.

Copper is employed in external Applications to Ulcers as a Digestive & Escharotic. By stimulating the Vessels it may produce that Degree of Inflamation which is necessary to the Formation of good Pus. The Antients frequently employed it in both these Intentions. Mercury is now more generally employed but there are Cases where the Copper is preferable. Dr. Cullen gives you an Account of a Disease which appeared a great many Years

agour Scotland with Ulcerations of the Mouth & Fauces with
Ulcers on the Tongue, about the Anus & in different Parts of the
Body resembling the Venereal Disease but distinguishable from
it by the different Sloughs of the Ulcers, their pinkish Appear-
ance, want of Infection from carnal Communication &c.
Mercury in this Disease was tried with no Success but Copper
almost always effected a Cure. A Solution of Verdigrease
applied to the Tongue very easily effected a Cure there by
inducing a good Suppuration but is more ~~difficultly~~ difficultly
applicable to the Tonsils also less quick in producing a Cure.
This Disease appears to resemble very much a Disorder in the
Southern Parts of the Continent called the Yaws which we are
also informed sometimes will not yield to Mercury. From
this whenever we have a difficult Ulcer under our Care
we should never despair of a Cure until we have tried the
Effects of Copper. For the ~~last~~ Purposes of Escharotics the best
Preparations of Copper are Mel & Unguent: Egypt: I would
here advise you never to be too free with the Use of Eschar-
otics at all for by the frequent Use of them for the Removal of
Fungus Flesh a good Wound is often converted into an ill-
conditioned Ulcer. A Surgeon of great Experience informed me
that he very seldom made Use of Escharotics & when he did
use them he never applied them to the Body of the Wound but
only to the Edges. When they are absolutely necessary we
may apply a little of the Mel Egypt: to the Ulcer. The Eschar-
otics most in Use are the Roman Vitriol. Burnt Alum
and White Precipitates. But as to the Doses of Copper taken
internally no certain Rules can be laid down for one
Person may take a certain Dose without much Nausea
when at the same time half the Quantity will vomit

another. The best Method is to begin with small Doses & to increase them gradually as Occasion requires.

The next Metallic Astringent we shall treat of is ——— Iron.

This is a Metal of more general use than any other. It may be combined with most Saline Substances and is soluble in all the Acids. The Vegetable Acid however only corrodes it but extracts all its Virtues. It may be given in Substance as the Acid of the Prima Viæ will corrode it, but this is always an uncertain Method as it depends upon the Acid in the Stomach & if the Iron does not meet with this it will produce disagreeable Effects merely from its Weight & Mechanical Action — We ought therefore to use some Preparation & it is of no great Consequence which we employ as they all post similar Virtues. When we want it in a powdery Form Lemery's Method is the best viz. to let Water digest about an Inch deep upon Iron Filings by which Means Rust will be converted into a fine black Powder which may be separated from the corroded Filings by shaking the Vessel. Iron combined with Acid of Sea Salt quickens the Motion of the Shops. This will readily combine with highly rectified Sp. Vin: & form a kind of Dulcified Sp. Sal: of a very agreeable Flavor. Iron is purely astringent without the stimulating Qualities of the Copper or the Irritating & deleterious Qualities of Lead but it is neither so powerfully astringent as the one nor so much of an Antispasmodic as the other. From its Astringency Iron is indicated in all

Cases of Lassitude & Debility & in Obstructions proceeding from the same cause. Iron is likewise employed as an Antispasmodic taking off the Mobility & Irritability of the Moving Fibres. It is on this Account indicated in the Hysterics when it is not to be given during the Paroxism but is to be employed after it to prevent its Return. It often proves a Cure in this Disorder & it is probable it would prove so oftener were not this Disease frequently accompanied with Obstructions of the Viscera. On this Account I generally combine Chalibs. Ppt. with Magn: Chalk or some other Absorbent and I obtain greater Advantages from this Combination than when the Steel is employed alone. The Absorbent forms a Neutral Salt with the Acid in the Stomach which proves a gentle Laxative & prevents the Costiveness which would otherwise take Place. This Combination produces better Effects than any other Preparation except the Mineral Waters which often produce Effects not to be imitated by any Preparations in the Shops. This is undoubtedly owing to the Smallness of the Doses as they contain Nothing but Iron & the strongly impregnated Waters seldom answer so well as the weak ones. Iron is sometimes combined with Bitters & Aromatics & in this Way may be given to Advantage in a very relaxed State of the Stomach. Whenever we must continue the Use of Iron for a long Time the most agreeable Method of taking it is to quench a red hot Iron in Cyder or Wine & make Use of it for common Drink. Iron has been recommended in the Hypochondriac Disease, but as this Disease is commonly attended with Rigidity the Use of Iron is certainly improper. It seems to have been given on Account of the Similarity which was supposed to take Place between the Hysteric & Hypochondriac Diseases. We now know them to be intirely distinct. Dr Cullen gives the

history of each Disease & points out their Difference very properly. The Hysteric Disease is accompanied with a Laxity of the Solids, Flatulencies, a disordered State of the Bowells, frequently with loose Stools - It generally attacks Women, is purely Spasmodic, is generally incidental & ameliorated by cold Weather - hence it is not so frequent in the Northern as in the Southern Climates. The Hypochondriac Disease is accompanied with Rigidity of the Solids, Costiveness & sometimes Spasms in the Abdomen but is seldom purely Spasmodic - It generally attacks People of a Melancholic Temperament & in the Decline of Life, is commonly habitual & is not so frequent in the Southern as in the Northern Climates - They are sometimes both combined in the same Persons.

Iron has been employed for the cure of Intermittents particularly by Dr Stahl & his Followers. They laying it down as a Maxim that a Fever was an Effort of Nature to throw off some Morbid Matter from the Body, thought it improper to disturb her in her Operations therefore employed the Peruvian Bark very sparingly. They made use of a very subtile Crocus Martis, but did not know that this acted in the same Manner as other Astringents & even Peruvian Bark itself. Iron is employed to Advantage in Chlorosis & Suppression of Menses owing to this Cause - I say owing to this Cause, because Suppression of Menses is not always owing to this Cause i,e, Relaxation but is oftentimes occasioned by Rigidity & Spasms of the Uterus in which Cases Iron proves hurtful.

The use of Iron is improper in all Inflamatory Diseases & in Hæmoptoe & the Hæmorrhages attended with Inflamatory Symptoms. It is improper in all Obstructions of the Viscera whereon there is a Disposition to Putrefaction.

It ought likewise to be avoided in Consumptive & Plethoric Habits. In Bilious Diseases we ought not to use it except in small Doses. In Ulcers of the Lungs & other Viscera it is not to be given unless very diluted. In these Cases the Mineral Waters will answer better than any other Preparation. Your Patient cannot have the Advantage of these nor may make an artificial Mineral Water by dissolving gr. v. vel gr. x of Salt tartar in 2 Lbs. of Water. The Use of this should be accompanied with a proper degree of Exercise.

Iron is possessed of a considerable Vermifuge Quality. Chalybs. Ppt. has been commonly made Use of in this Intention. I have frequently used it with Success. I now however generally use the Salt tartar & think it much preferable to the prepared Steel or any other Preparation. It not only destroys the Worms present but by giving Tone to the Intestines prevents their future Generation for when we come to treat of Anthelmintics we shall find that a relaxed State of the Intestines is the most frequent Cause of Worms. I generally give it from gr. ij to gr. v. at a Dose mixed with a little Molasses or Syrup not only to conceal the Taste but also because all Sweets have the Power of destroying Worms.

I have found Salt tartis to be a very useful Remedy in Relaxations of the Stomach producing Indigestions, Flatulencies & frequent Returns of a violent Colic. In these Cases I generally give it in Doses of gr. ij made into Pills with Castile Soap & occasionally a little Rhubarb added to prevent Costiveness. Salt tartis & all the other Preparations of Iron give a dark or even black Color to the Alvine Faces.

Lecture 18th.

The next Metallic Astringent we shall treat of is

Lead.

This is only used in Medicine when combined with some other Substance. The Calx of Lead with Oil forms the Empl: Comm: which is the Basis of most other Plaisters. In this Lead answers no other Purpose than giving proper Consistence. Lead is also only when combined with any of the Acids used in Medicine we generally employ the Composition of it with the Vegetable Acid. This gives us the Acetum Litharg: of Goulard, a famous Surgeon at Montpelier in France which is the Basis of the Bougies that go under his Name. The Acetum Litharg: is prepared in the following Manner. We take as many Pounds of the Calx of Lead e.g. Litharge as Pints of Vinegar & boil them over the Fire after they have Gould some Time we pour off the Liquor & keep it for Use. 3ij of this Extr: Saturni as Mr. Goulard calls it is to be added to a Pound of melted Wax when these are fully incorporated we set Rolls of Lemon cut in the Shape of a Tongue into the Composition & when they are cold we roll them up in the Form of a Bougie. This will answer very well if the Caruncles or Excrescences of the Urethra are not of long standing. When they have remained a long Time accompanied with Fistulæ we must make our Bougies stronger. We then take 3ij or 3ij Extr: Sat: to 3vj Ler: & put the Forme Bougies into the Composition. Bougies composed of Nothing but Mr. Deus's Fat Oil have been found serviceable when the

the Urethra was so sensible as not to bear any other Bougies. Some add Mercury to their Bougies but those above described will answer every Purpose of a Bougie. The Linnen which is employed in making Bougies should be fine Holland that has been worn by which it is rendered soft cut into a Lingiform Shape. The composition should be neither too hot nor too cold & care should be taken to prevent no Air Bubbles to remain in the Linnen which would render the Bougie unequal. Bougies are useful when there are Excrescences in the Urethra with or without a Gleet. We know that that these Excrescences are in the Urethra when the Urine will not pass in a continued Stream but often times comes off by Drops & sometimes by two Streams with Pain. They are likewise employed in Gleets of long standing. They are generally introduced at Night & suffered to remain in until Morning. They frequently produce Pain with some Degree of Inflamation & consequence Suppuration. They distroy Caruncles by inducing a Suppuration in them. They cure Gleets by producing a constriction in the Glands of the Urethra a Relaxation of which we know sufficient to keep up this Discharge.

Lead besides its Astringent is possessed of considerable Sedative Virtues. It should always be used with the utmost Caution for when continued for any length of Time it is apt to Produce Paralytic Affections of different Parts particularly of the Extremities. The Acetum Litharg: is employed for various external Applications. It is generally employed considerably diluted. A Spoonful of it with two Spoonfuls of Brandy is added to a Bottle of Water. This Combination is

well known under the Name of Aq: Veg: Min: This is employed with Advantage in inflamed Eyes- Lint dipped into the Eyes at a time & repeated twice the Day or else Compress moistened with it is kept applied to the Eyes- It is likewise said to be useful in Pains of the Ears when Deafness is apprehended a Tea-spoonful is poured first into one Ear & 5 or 6 Minutes after into the other- A Compress moistened with it is very serviceable in Scalds & Burns & other Cases of this Nature. It is also employed in Cases of partial Erysipelas but if it does not produce speedy Relief here the use of it should not be persisted in lest the Part should become Gangrenous. It is recommended in Fistulous Ulcers. In Sprains a Compress moistened with it produces very good Effects- It generally takes off the Pain & Swelling which commonly attend these Cases. Mr. Goulard recommends a Poultice of Bread with Acetum Lithar: in the Paronychia- This Disease commonly called a Felon generally affects the Joints of the Fingers & tormenting the Patient with a most acute Pain for two or three Days some Degree of Suppuration takes Place and ill conditioned Ulcer is formed & the Disorder generally terminates in the Loss of the Joint. If this Application is found upon Trial to possess all the Virtues that Mr. Goulard ascribes to it we may consider it as a valuable Improvement for no Medicine hitherto known has been found serviceable in this Disorder. It should be used in the Beginning- This Intention that in case you should employ it & you may not attribute Failure to the Inefficacy of the

Medicine when it is perhaps owing to the Disorder being too far advanced. It is likewise employed with Advantage in the Piles & in the Hernia Scrotalis & even in a strangulated Hernia. In this last Case it should be used cold. It is likewise employed in Scrophulous Inflammations of the Glands with Success.

Saccharum Saturni which is the Acetum Lithargi: in the Form of Crystals is recommended by D.r Boerhaave in Boulnes and Eruptions of the Skin in partial Inflamations as a Refrigerant & as a Cosmetic. St. Yves one of the best Practical Writers on the Diseases of the Eyes recommends it in Opthalmia. It is employed in Scalds & Burns. Mr. Bell of Edinburgh recommends a Solution of Sacch: Sat: in Water, to the Extract: as we can be more certain of the exact Strength of the former than of the latter & the latter is apt to let fall a Sediment which the former will not if a little Vinegar be added. Boerhaave likewise recommend Sacch: Sat: in Scirrus to prevent its becoming Cancerous. A Scirrus is a hard & indolent Tumor which will often remain a long time without giving the Patient any Inconvenience but if it is injured or any Stimulus is applied acute Pains are felt it ulcerates & becomes a Cancer. Lead by its Sedative Qualities rendering the Parts less sensible may prevent this Effect from taking Place. Perhaps to this may be owing the Success of old Family Receipts in this Case into the Composition of which Lead generally enters. In this Case I would prefer the strong Vinegar of Lead without any Spirit. It may be employed in Form of a Poultice with Bread or may be mixed with Flour to a proper Consistence & then spread upon a Rag & applied over the Part.

I

I consider the Introduction of Lead Water into general Use as a very considerable Improvement, but like all other Medicines when employed improperly it may produce bad Effects. Lead used inadvertently produces oftentimes Paralytic Affection in different Parts. It is hurtful in Eruptions of the Skin owing to Relaxation. When it is employed for too long a Time in Erysipelas it may produce Mortification. Mercury & Lead are sometimes employed in Medicine combined under the Name of Trochisci e Minio. They have been used with Success in Scrophulous Ulcers. They ought to be used only when the Ulcers are few, for if they are numerous & the Medicine is administered too freely its Exhibition may be attended with disagreable Effects.

Sacch: Saturni is employed internally in Hæmorrhages when it acts both as a Sedative & Astringent. It is likewise employed in Diarrhœas Dysenteries Fluor Albus & Gleets. For a few Doses it may perhaps be given without bad Effects, but it should not be continued long as disagreable Consequences will certainly follow. Sacch: Sat: & Antiphthetica into which that certainly enters have been used with Success in Continued Fevers & proved very serviceable in taking off the Nervous Symptoms. Mr. John Hunter recommends Sacch: Sat: in the Tetanus. I have never tried it in this Complaint nor do I know that it has ever been tried here — Whitelead is employed externally in the Form of an Ointment in the Cure of Burns — It ought not to be used long for it induces such a Degree of Flaccidity as renders the Parts very difficult to heal. White Lead is also used by the Ladies as a Cosmetic to produce a fair Hand & Skin & to take off those Freckles & Spots with which they are sometimes troubled — They however pay dearly for this short lived Beauty — The Skin becomes dry and shrivelled & a disagreable Sallowness with Pimples

takes Place which remains during Life. Lead has been accused of producing the Colica Pictonum & Palsies of different Kinds. The Colica Pictonum is distinguished from all other Species of Colic by it's frequently terminating in Palsies of the lower Extremities The History of the Disease will however be the best enable us to know this Complaint – The Patient sometimes suddenly feels a twisting Pain in the Abdomen but in general this is preceded by the following Symptoms. There is a Weight & Oppression in the Region of the Stomach – a Nausea & Aversion from Food – Heaviness of Mind, Langour of Body, Dimness of Sight & a Paleness of the Countenance – a Pain in the Abdomen generally situated about the Navel with a Sensation as if the Parts were twisting or as if something were boring it – The Epigastrium sometimes feels hard to the Touch but not always it is generally retracted towards the Spine with great Pain – The Pain sometimes remits for a short Time but returns again with increased Violence forcing cold Sweats From the Violence of Pain the Patient is intirely deprived of Sleep – There is little or no Evacuation by Stool – when any Faeces are voided they are hard round & scarcely larger than Sheep's Dung – The Anus is very much constricted & it is sometimes almost impossible to force a Passage – It appears also to be drawn upwards – The same Constriction takes Place in the Urinary Passages – There is a great Sickness at the Stomach, Nausea & sometimes a Vomiting which somewhat relieves the Patient for a short Time. In the Beginning of the Disorder there is no Fever as it advances the Pulse becomes frequent small weak & contracted – The Thirst is not very great. The Disorder generally continues in this Way for 12 or 14 Days about which Time a slight Pain is felt about the Spine of the Scapula which at last becomes fixed & causes a Weakness of the Arms – This Weakness gradually increases until it is changed into a Paralytic Affection of the upper Extremities.

The Feeling is much impaired tho' seldom intirely destroyed. Sometimes both upper & lower Extremities are affected but this is seldom the Case the upper ones alone being most generally affected. From the Time the Extremities are Paralytic the Pain in the Abdomen intirely ceases. The most common Cause of this Disorder is the Poison of Lead introduced into the Body. Since we find that those employed in Mines in Digging of Lead & those especially employed in melting Lead & exposed to the Vapor of it are very often afflicted with this Colic. Potters who make use of Lead in glazing their Earthen Ware & are exposed to its Vapor are so subject to this Disease that from them it has been called Colica Figulorum. Painters whose White Lead in their Art also are very subject to this Disease & from them it has been called Colica Pictonum. It is often found to be brought on by Sophisticated Wines. Some Vintners when their Wines become pricked or tend to Acidity mix with them a Quantity of Litharge or Sugar of Lead which sufficiently obviates this Tendency—

Dr. Franklin who has written an excellent Treatise on this Subject shows that in those Cities where Houses are covered with Lead or when the Water that is used for Drinks or Cooking is preserved in Leaden Cisterns the Inhabitants are very subject to the Colica Pictonum— He gives us an Instance in Amsterdam— The Houses of this City were formerly covered with Tiles but when it increased in Riches they were covered with Lead. The leaves of the Trees which make Amsterdam look almost like a Forest being carried by the Wind on the Tops of the Houses there undergo a Fermentation & corrode the Lead— When it rains this Salt is carried down into the Cisterns with the Water which the Inhabitants use with their Daily Food since the Houses have been covered with Lead the Colica Pictonum has been very frequent in that City—

whereas formerly it was scarcely ever heard of. This Colic is very common in those Counties of England where great Quantities of Cyder are made & it has commonly been ascribed to the fermenting Juice of the Apple. Dr. Akenside has shown that it is not owing to the Cyder but to the Lead contained in the Cyder. He observes that in the Cyder Presses they mostly make Use of leaden Pipes. If the Disorder was owing to the Cyder alone we should be as much subject to it in this Country, or even more so, where Fermentation is carried on more vigorously from the Heat of the Climate, than the Inhabitants of Great Britain. But find this is not the Case - our Presses have no Lead about them we employ Nothing but Wood or Iron

As for the Cure of this Disease it would be only taking up your Time to say any Thing upon it as it has been treated in so masterly a Manner by many able Writers. You may consult Akenside, D.r Haen, Huxham, Hillary, Tissot, Tronchin, Cullen & many others - I shall only mention one Fact which I met with in D.r Haen's Ratio Medendi. Hungary is a Country rich in Mines but poor in Inhabitants. Numbers that Work in the Lead Mines are carried off yearly by the Colica Pictonum. D.r D.r Haen observes that the Miners in one particular Place were remarkably free from it. This they ascribed to their having followed the Advice of a certain itinerant Quack which was to give the Men every Morning before they went to Work a Peice of brown Bread spread with hogs Fat. Since they had pursued this Method which was about 3 Years they had scarcely ever been troubled with the Colic, tho' before this Time it had been very frequent amongst them —

This was confirmed to him by a Physician who had attended these People 12 Years. There is no doubt but a Breakfast of this Kinds which being difficult of Digestion, remaining long on the Stomach, would most Spectually tend to Acidity & obtund the Acrimony of the Lead. A Dinner of fat Broths would still further tend to produce this Effect. From this Fact we learn that Oil taken by the Mouth & thrown in by Clysters would be of great Service in this Disorder. We also learn that the best Preservatives for those who are exposed to Lead, as Painters, is to live principally upon fat Meats & use large Quantities of Butter or Oil.

Zinc.

This has been used in various external Applications. Van Swieten recommends a Solution of the Flowers of Zinc in Water as an Astringent in Weakness of the Eyes. This Solution is also recommended when the Skin has been hurt by Friction as in riding. In most Chronic Diseases the Skin is apt to break in different Places. This we may generally forsee by red Spots appearing on the Skin. If these Parts are bathed with a Solution of Flor: Zinci the Skin will generally be prevented from breaking. Children and fat People are apt to chafe or have their Skin sore in different Places. These may be prevented or when it has taken Place be remedied by Means of the same Solution. Lap: Calim: & Tutty are sometimes employed to give a proper Consistence in some Plaisters & Ointments. They possess no Virtues for they will yeild no Impregnation to

Water & show no Vitues when combined with Vinegar. White Vitriol is a combination of Zinck with the Vitriolic Acid. It is employ'd externally in Hæmorrhages. It is likewise used with good Succes in Inflamations of the Eyes. We may likewise employ an Injection of it in a Gorrhœa when the Inflamation is gone, with Advantage. It is said to be a powerful Emetic & is recommended where Poison has been swallow'd The Dose is ℈ß.

The Flowers of Zinc have been lately introduced into Medicine with many Testimonies. They were not advised internally by any one except Glauber till D.r Gaubius discovered them to be the Remedy employed by the famous Empiric Luddemann under the Title of Luna Fixata. After this he exhibited them with Succes in the Cure of convulsive & Spasmodic Diseases. D.r Hart gives an Account of their Use in an Inaugural Dissertation which he published upon taking his Doctor's Degree at Leyden. The first Case D.r Hart relates was that of a Girl of 17 Years of Age who from a Fright was seized with convulsive and Spasmodic Affections which were attended by Tremors of her whole Body particularly the inferior Extremeties. This Disease our Author observes might justly be termed a Slight Chorea Sancti Viti. On the sixth Day after the Attack of this Complaint she was put on the Flowers of Zinc four Grains of which were

divided into xii Powders - Dog which to be taken every Day. From their Use her Symptoms were considerably diminished without any Uneasiness being produced. This Success encouraged Dr Van Doeveren (who treated the Case) to increase the Dose to ℥ ij Sacch: therefore finely powdered he added Gr. x ij Flor: Zinci divided into as many Powders - 3 taken every Day and by the Time they were finished her Complaints were intirely gone. Some Months after, this Patient from a sudden Fright, was again seized with her former Complaints; but upon taking Gr. iiij Flor: Zinci divided into ten Powders they were perfectly removed.

The two next Cases fall under the Notice of D. Gaubius. The first is the Case of a Boy about 4 Years of Age who labored under a real Epilepsy, suspected to be hereditary as his Grandfather was much afflicted with that Disease and three Children of the same Family had died of it. After many other Remedies had been tried in Vain Dr Gaubius ordered him the Flowers of Zinc - These he took to the Quantity of one Grain twice a Day & from the Use of them was perfectly recovered -

The second Case by Dr Gaubius is that of a Man about 50 Years of Age who from a high Degree of Vexation was thrown into such violent Convulsions as to be threatened with immediate Suffocation. Upon a Vein being opened & other Remedies administered the Fit at that Time went off but in about two Weeks after

it returned with as great Violence as before & attacked him even twice in one Night. To this Patient a Grain of the Flowers of Zinc was given every two Hours: After this he had no Return of the Fits.

Dr Gaubius observes he has used the Flowers of Zinc in Cases of Chincough, of Hysteric Hiccough & of the Spasmus Cynicus. He adds that they frequently did more than any other Medicine but that they were by no Means successful in every Case —

This Account excited the Physicians of Edinburgh and the other Parts of Scotland to make Experiments with the Flowers of Zinc. Mr Bell Surgeon at Edinburgh has published the Case of a Man who had been afflicted with the Epilepsy for 10 Years & by it was deprived of both his Memory & Judgment but was intirely relieved by the Flowers of Zinc. By the latest Accounts it appears that the Flowers of Zinc are still used with the same good Effect as formerly. In a late Volume of the Medical Commentaries we have an Account of an obstinate convulsive Cough which gave Way to a few Doses of the Flor: Zinci after resisting many other Remedies — as also of a violent Hiæranosis that had proved very refractory & withstood all the Class of Nervous Medicines, as Musk, Castor, Opium, Camphor, Bark, Valerian & warm & cold Bathing: Blisters afforded only a Temporary Relief: It was at length intirely

perfectly cured by the Flowers of Zinc to the Quantity of
nine Grains in a Dose.

I have myself tried it in a Variety of Cases with
Regret I add that my Endeavors were fruitless in
every Case but one - that of a young Woman in the
Pennsylvania Hospital afflicted with severe hysteric Paroxysms who was cured in a few Weeks by the
Use of it. In every Case where I have exhibited it for
two or three Weeks some Relief was obtained.

Epilepsy is owing to so great a Variety of Causes
that it is impossible any one Medicine can be
adapted to every Species -

The Cause of this Disorder is often lodged in
the Head & Brain & in this Case it is very obscure &
even without the Reach of Medicine. When the
Cause is seated in the Head it may be owing
1st To a wrong Conformation of the Brain in its
original Formation -

2d To Tumors in the Cranium. I once saw a Case of
this Kind which appeared upon Dissection. Here
no Medicine could possibly be of any Service -

3dly It may be owing to Extravasation of Blood in
the Brain - Thus Convulsions are frequently excited
by Contusions & Fractures. Few Apoplexies terminate

without Convulsions which are excited by Nature to throw off the offending Cause_

4thly Extravasation of Serum in the Ventricles_ this is generally attended with Convulsions & here Trepanning is of no Service.

Epilepsy may be owing to an Ossification of the Coats of the Arteries & Veins of the Brain. In four Cases out of five the Causes of Epilepsy remain concealed from us & if we were acquainted with these Causes it would nevertheless in many Cases remain incurable.

The Cause of Epilepsy is sometimes seated without the Head_ I do not mean the Occasional application of Stimuli but some permanent Cause existing in the Stomach & Bowells. It is sometimes Idiopathic. Under this Head may be ranked a too great Sensibility & Irritability of the System in general or of some Part in particular as the Stomach & Bowells. This Sensibility and Irritability may exist without producing Epilepsy_ it requires some occasional or exciting Cause to bring it on such Persons.

Epilepsy generally makes its Appearance before the Age of Puberty 'tis most frequently brought on

by Agitation of the Mind – Three Times out of four it is just
occasioned by violent & sudden Terror in life where it is
generated in the Womb of the Mother. I know several
Mothers subject to Hysterica whose Children are
thrown into Convulsions upon the Application
of any violent Cause or even a slight one long continued
and some of these Children remain subject to this
Disorder. This is a strong Confirmation of my Opinion
that Epilepsy may be owing to too great Sensibi-
lity & Irritability. This Disorder often disappears
about the Age of Puberty when the Body has arrived
at its full Growth. If it attacks Children in their
early Infancy & they are not relieved from it at
the Age of Puberty or when the Body has attained
its Growth they will continue subject to them
during the Rest of their Lives. This Kind of the
Disorder where the Cause is seated without the Head
is the only one in which Relief is to be obtained
from Medicine. For this Purpose many Substances
have been recommended as Specifics but they
have always been laid Aside because they
oftener failed than succeeded – This is a bad Reason
because no Medicine is suited to every Species.
Zinc is a gentle Astringent & perhaps to this

Quality all its Effects are to be attributed. Astringents have at all Times been used in this Disorder but only in weak & gentle Doses. When we wish to alter the natural Constitution by gradual & slow Means they seem very proper. This Vitrum Queneus which is a gentle Astringent has often relieved this Disorder. Whether I am right or wrong it can not invalidate the Usefulness of Flowers of Zinc which must be considered as a valuable Acquisition to Medicine.

The Flowers of Zinc are obtained either by Sublimation or Precipitation. For the Process to obtain them I refer you to Books of Chemistry and Pharmacy. The Method generally used in this City is to add to a filtered Solution of White Vitriol a Solution of Salt of Tartar — the Alkali attracts the Acid & the Metallic Part is precipitated in the Form of a white Powder which dried gives us the Flowers of Zinc. The Dose is from 3, 4, 6, to 12 Gr. White Vitriol has been used for the same Purpose and with the same Success —

In our next Lecture Gentlemen we shall treat of Water

Lecture 11th.

Water is an insipid inodorous not inflammable transparent Fluid Body. Thus seems to be but one Species in Nature except where other Matters adhere & are easily separable. There is a strong Presumption that Water owes its Fluidity to the Quantity of Air combined with it. Water is readily convertible into Earth. It may be reduced under two Heads Simple or Common & Mineral Waters.

The first is universally mixed with some Matters which however are not perceptible to our Senses.

Mineral Waters are so impregnated as to be easily discoverable by our Senses. However Common Waters differ considerably from one another—

The most simple Method to judge of the Purity of Common Water are first to add a Solution of the Lunar Caustic which is precipitated by the Vitriolic and Muriatic Acids as these are generally present in the Earth. Second Sugar of Lead is the most feeble Test of any and very few Waters will stand the Test of this we must therefore only judge from Plus & Minus. Specific Gravity has been reckoned among the Tests but improperly as Air diminishes it & many Saline Substances have the Power of fixing a large Quantity of Air. The more Air Water contains the more powerful Menstruum it will be. Water is derived to us from the Atmosphere. Rain

Rain Water is the purest of all Waters & can only be imitated by frequent Distillation. It is perfectly pure but is liable impregnated with a Matter capable of Putrefaction. Snow & Hail are equally pure only less impregnated with Air than Rain Water and consequently a weaker Solvent. Dew is another Atmospheric water which must be more impure than the former as they do not rise high from the Earth - we know that they are more putrifcent than the former. Rain Snow & Hail fall in greater Quantities in the Mountains - These form Brook Rivers & Lakes & the Waters of these come nearest to the Atmospheric in Purity they running a great Distance they may be impregnated with various Matters. The Waters of Lakes do not intirely stagnate for they have generally some Outlets - small Lakes may however suffer some Change & become more putrefactant. River Waters seem to be very tenacious of their Purity & can seldom be spoiled by any Impurities communicated to them — Spring Waters take their Rise from the former for as they penetrate the Earth they afterwards break out again & are in Springs - These are of various Degrees of Purity. Those near the higher Countries seem to be purer than those in the lower Grounds - few of them are however intirely pure.

Mineral Waters have afforded Matter of Inquiry to Physicians & Chemists of all Ages we should therefore expect to find a good Account given of them & their Qualities & Virtues but here we are deceived as those Writers were generally unacquainted with the Systems of Chemistry. We must therefore proceed on quite a new Plan & endeavor to determine a Priori.

To do this we must first consider what Matter may be combined with Water & of what Quality those Matters are. These may be ranged under four Heads. 1st Saline, 2d. Metallic, 3d. Inflamable & 4th Earthy —

1 Saline Impregnations. There are no Acids in the Earth to impregnate Water except the Vit & the latter is found in Alimentary Salt & in it alone — in a fixed Form. it is likewise very rarely found — it is likewise present in Sea Water & in some Springs but scarce in its simple State The Vitriolic may be present in its separate State but only for a Moment as it is so ready to combine with other Matters. The Water which flows out from Coal Mines has more or less of Vit in it which is owing to the Pyrites deliquescing in the Air & therefore is hardly to be called a Mineral Spring.

Alkalines. The Vegetable Alkali is certainly excluded from the Fossil Kingdom & therefore not found in Mineral Waters — Volatile Alkali has not been ascertained to enter Mineral Waters in a separate State yet a Vol. Alk. has been obtained from Mineral Waters by accurate Chemists but it seems the Result of a Decomposition of Hepar Sulph: present there. Ammoniacs have not yet been discovered in Mineral Waters which seems owing to its easy Decomposition. Fossil Alkali. This seems almost universally present — Neutral Salts. Consider what has been said above & you will easily see that Glaub: & Common Salt are the only Neutrals that occur in Water. They are seldom pure but commonly combined together. Glauber's Salt is not so universally present as has been imagined, but a Combination

of ☉ & Magnesia has been generally taken for it. This gives us purging saline Waters as of Epsom in England—

Inflamables. Naptha is the only Fossil Oil & therefore we must expect only this: It diffuses itself in the same Manner as Essential Oils in Waters distilled. Sulphur. This cannot be combined with Water in a simple State, but Sulphur combined with Alks: becomes soluble in Water. Sulphureous Waters therefore commonly called stinking Waters e.g. Harrowgate in England are owing to this. Hepar Sulph: The Sulphur however is generally present in very small Quantities & therefore the Virtues of this Water are not perhaps so considerable as has been immagined & their Virtues may be rather owing to the Alks:. Whether Oils mixed with Alks: & forming Soaps are dissolved in Water & give us saponaceous Water is still doubtful. The Waters called Saponaceous seem rather Earthy Waters as they give us a fine Clay—

Metallic Matters. The most Part of these are insoluble in the Acids present— others again are insoluble in their Ores, others require Heat— The greatest Part are therefore excluded. Iron & Copper are the most common Metallics and the easiest soluble, hence they can precipitate all the other Metals: Copper is also very rare as it is liable to be precipitated by the Iron. Iron therefore is present in almost every Spring; rarely in its natural State, frequently combined with Neutral Salts. Dissolved in the ☉ it should be in the State of Green Vitriol. but we can hardly ever obtain it so: This is because the ☉ is generally in a Volatile State when it is readily decomposed & loses its Power of holding Iron in Solution. Water impregnated with Copper

is found in few Places & by laying Masses of Iron into their Course the Copper is precipitated & the Iron suspended, hence the Name of Cement Waters. It is remarkable that we find no Waters impregnated with Zinc tho it is suspended by the Ø & not precipitated by Iron nor Copper: Tho White Vitriol is found Native and Zinc is now found frequently in the Earth. Perhaps nevertheless Zinc is frequently present but there is a Difficulty in discovering it whereas Iron & Copper are easily discovered. The only true Means to know is by taking the Residuum of the Waters & cementing it with Copper & there producing Brass. has found Zinc present in one Spring of Mineral Waters.

Earthy. These are very copiously suspended in Water and independant of any Solution in Acids, especially the Calcareous, & these are intirely insipid, only discoverable by their Sediment. e, g, all the incrustating Waters. Besides this Magnesia is frequently found. Alum is likewise found. Crystaline Earths are undoubtedly present in Waters, at least Waters deposit Crystaline Matter But they are never present in such Quantity as to give them a peculiar Quality. Argillaceous Earth is probably present in Water often in large Quantity, especially in those commonly called saponaceous Waters. Earths combined with Vitriolic Acids give us several Species of Waters.

Earthy Salts. 1st Vitriolic Acid with Calcareous Earth which gives us Selenites. This gives us what are commonly called hard Waters. Spiritus Glauber's Salt is frequently present. Earth of Alum occurs rarely as Alum

is precipitated by Iron. Fixed Ammoniac occurs very rarely and perhaps not at all. For the Method of discovering the Constituent Parts of Mineral Waters vide Chemical Dictionary

Of the Medical Virtues of Common & Mineral Waters.

We are here reduced to the same Necessity as before The Facts alleged in Proof of their Efficacy are not to be depended upon, but have been much misrepresented by the Ignorance, Design & Credulity of their Abettors. This will appear still more evident when every Virtue they can boast of has been attributed to common Water itself. The Virtues of common Water are very considerable. Taken into the Stomach it acts as a powerful Stimulant to the whole System. Hence the Southern Physicians & Ancients used it in bringing on the Crises in Fevers. On the same Foundation it is of Use in Chronical Cases by giving the Fluids a Tendency to the Surface, and in this Way it is one of our best Medicines. It excites Appetite & promotes Digestion by its Stimulant & Solvent Powers & by its Bulk it promotes the Peristaltic Motion of the Intestines. Carried into the Blood a great Deal is to be attributed to its Bulk. by distending the Vessels it will stimulate the Vascular System & thus keep up & promote the several Secretions. As the Fluids are constantly changing, Water will be the best Menstruum for carrying off the degenerated Parts & keeping the Remainder pure & fresh. Hence it is useful in the Scrophula. It thus seems to be the principal Medical Ingredient in Mineral Waters upon Impregnation however they may become more efficacious.

The

The acid & alkaline Impregnations may co-operate with the Water & act as Stimulants, Antiseptics & Antizeumics & hence promote the Secretions.

I am now at a Loss to find out the Virtues of Sulphureous Waters, the Oils & Sulphur being in a too small Proportion. Taken into the Blood they may determine to the Surface and may perhaps serve to destroy cutaneous Vermin. It is probable that all the Waters that have fixed Air as they are of less specific Gravity so they may seem lighter on the Stomach & facilitate Digestion more than common Water. The Air that accompanies these Waters seems to be of the Mephitic Kind & will sometimes intoxicate & bring on a Stupor with those that are not accustomed to them.

The Chalybeate Waters have all the Effects of our Steel Medicines & seem indeed to be preferable as the Water they carry with them may prevent the bad Effects of their too great Astringency.

With Regard to Earthy Impregnations those of the petrefying Kind have been immagined to be delete-rious in generating Calculi but the Facts alleged to prove it are not ascertained with Accuracy. I imagine the Acid of our Stomach would by converting them into a saline State prevent this Inconvenience - nay they have been said to be of Service by absorbing that Acid.

Having finished the Consideration of the Fossil & particularly of the Metallic Astringents we are next to treat of

Vegetable Astringents.

These differ from the Fossil in several material Points -

1st. — They are not so quick in their Operation.

2d. Their Action is more confined to the Primæ Viæ, whereas the Metallic Astringents by their Stimulus extend their Effects more over the System.

3dly They are weaker in any exigency as in violent Hæmorrhage are not to be trusted to. When we want to bring about a gradual Change in the System the Vegetable Astringents are to be preferred, but when we want a strong sudden & certain Astriction they are greatly inferior to the Fossile. They should always if possible be given in Substance for we have no Menstruum to extract their Virtues. We have indeed Waters of Sp. Vin: but the Impregnations are in general very weak. Sp. Vin: likewise rarely must limit the Dose — for supposing an Ounce of Sp. Vin: would extract ℥j of any Astringent which is allowing largely, there are few Cases in which we can give ℥j. of Spirituous Tincture without producing worse Effects than those we intended to remedy. There is a Remark of Dr. Alston late P. M. M. at Edinburgh that the Peruvian Bark remains a long Time on the Stomach in a solid Act is probable other Vegetable Astringents do so too. Dr. Cullen says he has seen Bark thrown up unchanged 8 Days after its Exhibition, but in this Case the Stomach must have been in a disordered State and we find Food thrown up unchanged after it has remained a Day or two or even longer in the Stomach.

Vegetable Astringents taken in Substance remain longer on the Stomach than when taken in Solution — hence

hence their Virtues will be more completely extracted & will prove more serviceable. As Veg.e Astringents are longer in the System before they are dissolved & this is one Reason why their Operation is not so quick. When given in Solution they seldom produce such considerable Effects as when given in Substance They pass off more quickly & are apt to prove Purgative. They are likewise in this State apt to undergo a Fermentation by which their Astringent Virtue may be destroyed. As the Fossil Astringents are not subject to this Process & even resist it they are not liable to be changed in the Prim.æ Viæ. Vegetable Astringents should be given in Substance in Form of Powders, Pills or Boluses. As by the long continued use of them we are apt to induce Costiveness we may to obviate this combine some gentle Laxative with them. Rhubarb is one of the best as it has a Purgative conjoined with its Astringent Quality. We should be careful not to employ such Purgatives as tend to produce Relaxation. Flowers of Sulphur, Aloes, Calomel where a few Grains will answer the Intention are the best we can employ.

We now come to treat

Of Particular Astringents.

The Operation of these you will understand from what has been said of their general Effects. I shall only take Notice of such as have been recommended for particular Purposes. Dr. Cullen has treated this Class of Medicines so amply that you will not be at a Loss if I should even be guilty of some Omissions.

Pentaphylleum

Pentaphylum or Cinque Foil is a simple disagreeable Astringent but a very weak one. Dioscorides recommends a Decoction of it for the Tooth Ach & other Astringents have been employed for the same Purpose. As it is but weak no great Effects are to be expected from it but from its agreeableness it may be combined with others & prove serviceable in relaxed Habits - It may be given in Infusion & used by the Patient as a constant Drink. Tournefort assures us that he cured a Tenor Alvus with the expressed Juice of the Cinque Foil. This Disorder we have said before is frequently owing to a general or partial Relaxation & the Cure is to be attempted only by gentle Astringents which restore Tone to the relaxed Parts -

Roses are sometimes employed in Medicine. They are a weak Astringent of an agreable Odor & Taste. An Infusion of red Roses sweetened with Vinegar will afford an excellent Drink in Putrid Fevers & Dysenteries much more agreable than the nauseous Drinks generally employed. This Infusion may also be employed to prevent the Return of Hæmorrhages -

Tormentilla is a very pure Astringent & for its Efficacy deserves to be placed at the Head of Vegetable Astringents. In Italy where it grows plentifully it is used for the Tanning of Leather. It was employed for the Cure of Intermittents before the Peruvian Bark was discovered & its Vertues in this Case were known in the Time of Hippocrates. It was likewise employed in all those Cases where the Peruvian Bark is now used, with superior Efficacy. The Indians on this Continent use

in the same Intention a Plant of the same Nature with the Tormentilla- the Geum. For the Cure of Intermittents the Tormentilla was generally combined with Bitters, for it was known that Astringents combined with Bitters were highly serviceable in this Disorder, long before it was discovered that Nature had formed this Combination in the Peruvian Bark. It has been recommended from Time immemorial for the Cure of Diarrhoeas & Dysenteries. It will no doubt be as proper as any other where Astringents are serviceable in these Cases They are however not so frequently useful as is commonly imagined. We shall have a better Opportunity of inquiring into the Use of Astringents in those Cases hereafter & with therefore defer it till then.

A Decoction of Tormentilla has been recommended to prevent Abortion. This 9 times out of 10 is owing to Relaxation and Irritation of the Uterus. A Person who has suffered Abortion from this Cause should immediately after Conception be put upon a Course of some gentle Astringents. The Metallic Astringents are not to be employed for by their Stimulus they will increase the Impetus of the Blood & consequently increase the Danger of Abortion. The Vegetable Astringents are to be preferred. The best Method of exhibiting them in this Case is in Infusion in cold Water. ℥ j of Tormentil may be macerated for 24 Hours in a Quart of cold Water for this extracts the Virtues of Vegetable Astringents. This I know from some Experiments made by myself & some of my Cotemporaries at Edinburgh. Three or Six of us formed ourselves

into a private Society solely for the Purpose of inquiring into the Virtues of different Medicines & the best Manner of preparing them. We amongst others tried Astringents & found that their Virtues were best extracted by cold Infusion. We tried all the different Astringents we could lay our Hands upon or that were used in Medicine & found the Result always the same. Infusion in Cold Water for 24 Hours extracted their Virtues more powerfully than any other Menstruum. This I do not recollect to have seen taken Notice of by any Author. It is however a Fact which I would advise you to pay a particular Attention to in Case you employ any Vegetable Astringent & cannot give it in Substance.

Rubia or Madder is a very weak Astringent & as such it might pass unnoticed - It deserves however to be mentioned on Account of another Matter it possesses. It has been found to cover the Bones of those Animals, that feed upon it, red. The Callus of a broken Bone is not tinged. It appears that the Bones of young Animals are sooner tinged than those of an old one. That the Callus Ligaments Tendons Nerves & indeed every Part but the Bones were not colored by it. Mr. Severet a famous Man Midwife of Paris recommends Madder for the Rickets & a Spina Ventosa he has employed it with Success. In this Disease however Nature generally performs the Cure and we trust more to the Cold Bath to assist her than to any other Remedy. I can not imagine how a Substance

which is found to render the Animals that feed upon it sluggish & heavy should have any Effects in this Disease—

Madder has been recommended for the cure of the Jaundice but it possesses no Virtues by which it may effect a cure in this Disease. It has probably been employ in this Disease with many other Substances merely from its Color. We now know that the Jaundice is generally owing to Concretions in the Biliary Ducts by which the Passage of the Bile into the Duodenum is prevented, a Regurgitation is produced, and an Absorption of that Fluid into the System takes Place. The Disorder generally goes off suddenly from the Concretion passing into the Intestines of itself & being evacuated by Stool. The Medicine which happens to be given at this Time is generally thought to have performed the Cure. The cure depends on Solution or Evacuation— Hitherto we have discovered no Medicine that will dissolve the Concretion— we must therefore depend entirely on Evacuation. This is to be attempted by Emolients, Emetics & Laxatives. By these we produce Relaxations in the Parts & compress the Liver by which the Expulsion of the Concretion into the Intestines is promoted. Dr. Stultz P. M. at Halle recommends a Decoction of Madder in the Disease called Gutta Rosacea or a red pimply Face.

Bistorta—

Bistorta is a simple & strong Astringent. It has been recommended from the Beginning of Time in the Tooth Ach & for strengthening & fastening loose Teeth. Many other Astringents have been recommended for the same Purpose for which they will answer much better than the Dentifricis commonly made Use of. As the Sourdness of the Teeth depends in a great Measure on the Purity & Sourdness of the Gums, there is no Doubt but any moderately Astringent Application, as washing the Mouth with a Decoction of Bistorta, or even chewing the Root by rendering the Gums firm & sound & by promoting the circulation in the finer Vessels, will contribute to fix the Teeth firmly in their Sockets will give them a white Color & if any Thing will have this Effect will preserve them from Decay.

Lapathum or Dock Kinds - of this there are various Species. They have all been recommended in the Scurvy & in cutaneous Foulnesses & Eruptions which were thought to be owing to a Scorbutic Habit of Body. The Stalk has been thought to be owing to this & the Dock has been employed for the Cure of it. Thus in find it is an Ingredient in the Unguent: Antiphor: of the Edinb: Disp: We now know that the Itch is owing intirely to a Species of small Insects called by Linnaus Acarus. They are the same as those found in damaged Flour & other damaged Vegetables. It is intirely particular dis to be cured only by such Applications as come in immediate Contact with the Vermin. Common Dock bruised or infused in Milk or Cream for 24 hours & applied externally is a

Domestic Medicine frequently employed for the Cure of this Disease & I have been assured that it seldom or never fails of Success. Whether Ring Worm are owing to the same Cause as the Itch is doubtful. They may be as effectually cured by the expressed Juice of the Dock as by any other Means —

Radix Brittanica, one of the Dock Kind has been much recommended in the Scurvy. Stuntingius who wrote a Treatise on the Virtues of this Plant tells us that the Army of the Emperor was in great Danger of being destroyed in Holland by the Scurvy & that the greatest Part recovered by the Use of this Remedy. Mr. Colden formerly Lt. Governor of New York gives us an Instance of a Gentleman afflicted with ill conditioned Ulcers in his Throat for which he had taken the Advice of different Physicians to no Purpose. He was at last perfectly cured by an Indian. He drank plentifully of a Decoction of the Radix Brittanica & also used it as a Gargle. It is very serviceable in all ill conditioned Ulcers & in those Ulcers commonly called Cacoethic of the Legs and other Parts of the Body. These Ulcers will often baffle the Efforts of the most skilful Physicians & after they have been dismissed as incurable, it some Times happens that some old Woman undertakes & even performs a Cure. The Remedy they generally employ is the common Dock which they apply externally as a Fomentation to the Part & at the same Time make the Patient drink plentifully of a Decoction of it. The Dock is possessed of considerable Acrimony with its Astringency. It acts not only by its Astringent

Qualities giving Tone to the Parts, but also by its Stimulus it excites the Action of the Vessels of the Part. It likewise increases the Evacuation by Urine but principally by the Skin, by which the too great Determination of the Fluids to the Ulcer is taken off. The Use of it should be persisted in for a length of Time.

Filices or Fern Kind were formerly much employed in Medicine but are now seldom used. The Filix Mas or Male Fern was recommended by Dioscorides for the Cure of Worms in the Dose of ℥ß. I have accordingly in my different Courses of Lectures amongst the Anthelmintica enumerated the Fern, thos from its being never employed I concluded that it possessed no considerable Virtues. It has of late been again introduced into Practice. Madame Nouffer had acquired great Reputation for a supposed Specific she possessed for the Cure of the Tape Worm. She at last obtained a Premium from the King of France for the Discovery of her Secret, which was found to be the Root of the Male Fern in Powder. Thus has the Medicine been again introduced into Practice under favorable Circumstances & it is probable that Mad: Nouffer or the Person who had discovered the Secret to her had learned it from some old neglected Herbal.

Capillus Veneris has been recommended on Account of its Pectoral Virtues & has been said to cure Consumptions; but it is now with Propriety totally neglected

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